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CANCER OF THE TONGUE: A PREVENTABLE DISEASE *

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In this paper, evidence will be submitted which seems to prove that cancer of the tongue is largely a preventable disease. On this point, a brief preliminary communication [1] has been published.

TEACHING MORE IMPORTANT THAN SURGERY

Tables 1 and 2 illustrate the changes in the type of the lesion observed in 265 cases in men, in the four decades between 1889 to 1921.

In Table 2 the percentage of benign lesions has increased from 3.7 in the first decade to 55 in the first two years of the last decade. The majority of benign lesions from 1900 to 1910 did not come under observation until 1906, after my first communication. There is a tremendous increase after 1910—from 24 to 48 per cent.

In reading the 105 histories of benign lesions of the tongue one observes that, with hardly an exception, the patient sought advice because he had read something in the daily press or in magazines or heard a lecture about the danger of cancer developing in an innocent, painless area of irritation in the mouth.

TABLE 1.—SUMMARY OF MALIGNANT TUMORS OF THE TONGUE IN MEN

	1920:1921 Cases		1910:1920 Cases		1900:1910 Cases		1889:1900 Cases		Totals Cases	
	No.	%	No.	%	No.	%	No.	%	No.	%
Early malignant...	9	60	17	22	9	21	1	3.5	36	22
Advanced cancer...	3	20	37	48	22	51	13	50	75	47
Hopeless cancer....	.		15	20	5	12	2	7	22	14
Inoperable cancer..	3	20	7	10	7	16	10	39	27	17
Totals.....	15		76		43		26		160	

In addition, early malignant lesions have increased from 3.7 per cent. in the first decade to 23 per cent. in the fourth, or as shown in Table 1 to 60 per cent. of the total number of cases of cancer.

Advanced, but still operable, cancer continued to increase until 1910, but did not show marked decrease until 1920.

Hopeless and inoperable cancers show a steady decrease in each decade.

In studying the histories of cancer of the tongue, I found that patients came for surgical treatment earlier after the beginning of the malignant disease through the education of the public and the profession.

The study of the ultimate results in cancer of the tongue shows that, after five years, 62 per cent. of the patients with early malignant cancer are well, and 12 per cent. of those with advanced cancer, while all those with hopeless and inoperable cancer are dead. The total operative mortality of the early malignant cases is 5 per cent., and of the advanced cases is 30 per cent.

TABLE 2.—SUMMARY OF ALL LESIONS OF THE TONGUE IN MEN

	1920:1921 Cases		1910:1920 Cases		1900:1910 Cases		1889:1900 Cases		Totals Cases	
	No.	%	No.	%	No.	%	No.	%	No.	%
Benign lesions.....	19	55	71	48	14	24	1	3.7	105	40
Early malignant...	9	25	17	12	9	16	1	3.7	36	14
Advanced cancer...	3	11	37	25	22	39	13	48	75	28
Hopeless cancer....	3	11	22	15	12	21	12	44	49	18
Totals.....	34		147		57		27		265	

DANGER OF DELAY

Delay in proper treatment after the onset of the malignant lesion reduces the chances of a cure in operable cases from 62 to 12 per cent., and increases the chances of postoperative death from 5 to 30 per cent. Further delay means an inoperable condition for which, at present, we have no treatment that promises a cure.

The educational propaganda has therefore increased the number of operable cases from 53 to 80 per cent. and decreased the number of hopeless and inoperable cases from 47 to 20 per cent.

Warning.—I have the evidence to show that men who develop cancer of the tongue have been warned by definite local lesions.

There is, first, the warning from a lesion that is not cancer. These precancerous lesions are leukoplakia, bad teeth, areas of irritation, ulcers, syphilitic gummas, warts, fibromas and smoker's burns. I will describe these in detail later. If the man seeks and obtains good advice, he should be protected from cancer. This has happened now in 105 patients, or 40 per cent. of the total, and, as has been stated before, the number of these informed patients that have been protected has increased from 3.7 per cent. in the first decade to 55 per cent. so far in the fourth decade.

There is, second, the warning from the definite cancer developing in the precancerous lesion; but this may be insidious and the infiltration of the cancer may be slow or rapid. The uninformed person, with rare,

* Owing to lack of space, this article is abbreviated in THE JOURNAL by the omission of several illustrations and detailed discussion of the cases. The complete article appears in the reprints, a copy of which may be obtained on application to the author.

1. Bloodgood, J. C.: Cancer of the Tongue a Preventable Disease, Correspondence, J. A. M. A. 77:220 (July 16) 1921.

if any, exceptions, will not seek advice until cancer is in its advanced stage, when he has only 12 per cent. chances of cure and 30 per cent. chances of postoperative death. It is true that in recent years, with operations under local anesthesia, we have reduced the postoperative mortality; but I have been unable to demonstrate that we have increased the five-year cures in this advanced stage.

Some cases of cancer of the tongue infiltrate so rapidly that the condition is hopeless or inoperable within two months after the onset of what we might call the secondary warning of cancer.

The great increase in the percentage of benign lesions of the tongue and in the early malignant stage, and the decrease in the percentage of advanced and hopeless cases is distinctly shown in Tables 1 and 2, and I attribute this to a continuous and persistent educational propaganda among the public and medical and dental profession within the zone of my personal influence.

If other large clinics cannot show this improvement, it is not the fault of their method of treatment, but is the result of their failure to teach.

Improvement in the cure of cancer of the tongue is very much the same problem as in appendicitis. Failure to cure appendicitis is not the fault of our treatment of peritonitis and abscess, but is the result of our failure to instruct the public and medical profession how to recognize appendicitis before abscess formation or peritonitis sets in.

This study of 265 lesions of the tongue in men and thirty-three in women convinces me that our only hope of decreasing the deaths from cancer depends on the educational propaganda among the public and the profession.

Delay After the Onset of Cancer.—Table 3 shows the danger of even one month's delay after the onset of a definite local cancer of the tongue. Within this period, 33 per cent. have become advanced, with only 12 per cent. chances of cure. This alone should be sufficient to justify the detailed description of the precancerous lesions which appear in this article with illustrations. After one or two months and up to six months, twenty-five cases, or 29 per cent., had become hopeless and inoperable.

TABLE 3.—DURATION OF CANCER OF THE TONGUE IN MEN

	Up to 1 Month	1 to 6 Months	6 Months to 1 Year	More Than 1 Year
Early malignant	12	12	3	..
Malignant warts	..	1	1	1
Advanced cancer	6	46	9	6
Hopeless cancer	..	25	9	5

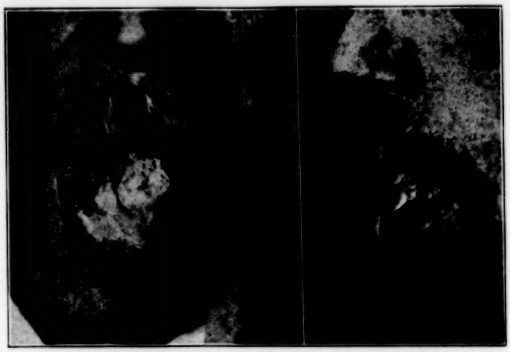

Fig. 3 (Pathol. No. 22760, JCB. 8283).—Extensive leukoplakia with stomatitis, fissures, and benign warty growth; Wassermann reaction, positive; well after three years.

It is true that cancer may grow so slowly that it still is in the early stage even after six months, but this is rare.

I will now discuss in detail the etiologic factors and the primary warnings in 160 cases of cancer of the tongue.

COMMENT ON TABLES 1 AND 2

For the purposes of this study the malignant cases classed as early are those with a small lesion on the tongue or the floor of the mouth, which can be easily removed through the mouth. In some of these cases, the glands have been removed, in others they have not.

Cases have been classed as advanced when the local lesion has been more extensive and has indicated a more radical operation on the tongue, and the floor of the mouth and glands, and in many cases it was removed with a piece of the lower jaw.

Hopeless is a group in which before operation the surgeon is rather of the opinion that the diseased tissue could be removed, but at operation it is distinctly demonstrated that the condition is inoperable.

In the inoperable group there is no question from the clinical picture that the disease cannot be eradicated by operation.

Every patient in the inoperable and hopeless groups has died or is dying of the disease. In these groups, we have not a single case in which any other method of treatment has given any definite results.

ETIOLOGIC FACTORS

Tobacco, rough and dirty teeth and improperly fitting plates predominate as causes of cancer of the tongue.

Tobacco.—Among 160 cases of cancer of the tongue, it is distinctly stated in the history in only two cases that the man did not use tobacco in any form. In both, there is a history of bad teeth for years, producing an area of irritation. In one, an ulcer formed later from the ragged tooth; and in the other a definite wound was produced by the ragged tooth.

In all the old complete histories and in all the recent records, it is distinctly stated that the men had used tobacco in one form or in another, usually to excess. In a number of the older histories with very incomplete data, no mention is made of the use of tobacco. The evidence, therefore, is overwhelming that the continuous and prolonged irritation from tobacco in some form is the chief factor in producing a lesion which may later develop into cancer.

The rarity of cancer of the tongue in women is additional evidence. In the few cases of cancer of the tongue in women, the patients have used tobacco, usually in the form of snuff by the mouth.

When we study the histories with the idea of determining which is the most dangerous form of

using tobacco—pipe, cigaret, cigars, chewing tobacco or snuff by mouth, we find numerous examples of cancer in patients who have used tobacco in only one form; many who have used it in all forms. The striking feature is the excess, not the form, the constant presence of tobacco juice in the mouth, and careless smoking, so that there is repeated burning of some one area, producing either an area of irritation, or a definite burn, or leukoplakia.

It seems quite reasonable to conclude that men can be educated to use tobacco moderately and in such a manner as to reduce the danger to a minimum, and to be instructed on the warning which would influence them to discontinue, at least temporarily, the use of tobacco in any form, and to keep the teeth clean and smooth.

Leukoplakia.—Among 160 cases of cancer of the tongue in men, leukoplakia had been observed by the patient for years before the appearance of cancer in forty-one cases. In twenty-seven of these cases, more than 50 per cent., there was a distinct history of local irritation from rough, dirty teeth, or improperly fitting plates. In fourteen cases, the leukoplakia alone seems to have been responsible for the development of cancer.

Leukoplakia and Syphilis.—There was a history of syphilis and a positive Wassermann reaction in nine cases, about 21 per cent. This is higher than the normal incidence of syphilis, which is from about 6 to 7 per cent.[2]

Bad Teeth.—In the records without a history or evidence of leukoplakia, there is a distinct history of ragged, dirty teeth producing a local area of irritation, present for months or years before the development of cancer, in forty-seven cases.

Good Teeth.—In three histories there is a definite notation that the teeth were in good condition, with no evidence of pyorrhea, roughness or dirt. These patients had no leukoplakia. One, however, had observed an area of irritation for seven years on the middle third of the lateral surface of the tongue which impinged on the teeth. This is very suggestive that the note on "good teeth" may be incorrect. In the remaining two cases, the patients smoked a pipe, and one had observed an ulcer for six months; the other an ulcer, for one year, on the tongue where the end of the pipe rested against the tongue. These histories are suggestive that the primary lesion was a burn, and the patients may have had their warning longer than six months and one year.

Area of Irritation.—In twelve cases in which there was no definite leukoplakia recorded, the condition which had warned the patients for months or years was a local area of irritation. From the histories, it is difficult to tell whether this was due to a burn from smoking, or to irritation from bad teeth.

Ulcer.—In forty-three cases, the patients were aware of the presence of a definite local ulcer on the tongue or floor of the mouth for months before the development of cancer. In these cases, there was no record of leukoplakia, and the exact etiologic factor of the ulcer was sometimes difficult to determine. In a number of cases, there was evidence that the ulcer was due to a definite burn, in others to the fact that the patients kept chewing tobacco over the area; in others, again, to bad teeth; in a few to a definite wound from a foreign body or from biting the tongue—a wound which never healed.

Irrespective of the factors which caused the ulcer, the important fact remains—that forty-three patients had definite ulcers for months which could have been treated and cured before the development of cancer.

Syphilitic Lesion.—In only one case was the local lesion on the tongue apparently syphilitic in origin, and in this case the cancer developed in a gumma.

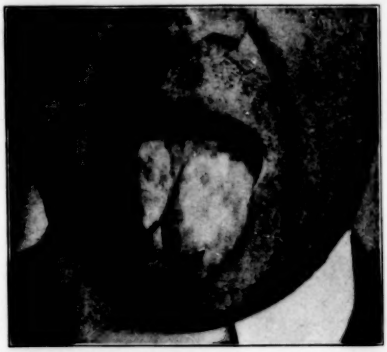

Fig. 4 (Pathol. No. 16416, JCB. 5888).—Extensive leukoplakia of tongue, stomatitis, fissures; Wassermann reaction, positive; of years' duration; small ulcer at *X*, of three weeks' duration, excised; microscopically, cancer; well after seven years.

It is true, that in a number of instances the local lesion was treated for syphilis, in many, in spite of a negative Wassermann reaction and without positive evidence in favor of syphilis, and with the only result that proper treatment was delayed.

Wart.—In four cases the prominent precancerous lesion was a definite wart, present two and ten months, one and two years, respectively. The warts at operation were found to be malignant, easily removed, and the patients have remained well.

In only one instance of a fully developed cancer was there a history of a wart; but this patient had been warned for years by leukoplakia, and the wart was an example of hypertrophy of the epidermis which now and then develops in the area of leukoplakia.

Fibroma.—This is a subepidermal nodule, apparently a scar tissue tumor. There were four cases of the condition. This is an uncommon precancerous lesion, because during the same time we had eight examples of benign fibromas removed from the tongue, the duration of the lesion varying from two weeks to fifteen years.

The four cases of fibroma in which cancer developed indicate the importance, however, of removing such a lesion of the tongue, because four out of twelve, 33 per cent., have become malignant.

In two of the cases, the histories are incomplete: One patient had observed the fibroma for nine months, the other patient for one year, more than sufficient time for its removal before the development of cancer. One patient had been warned for years by the presence of leukoplakia and had observed the nodule which suggested a fibroma for but two months. In this case, the cancer was not in the fibroma, but in the mucous

2. Cary, N. A.: Frequency of Syphilis with Cancer of the Lips, Tongue and Buccal Mucous Membrane, J. A. M. A. 75:858 (Sept. 25) 1920.

membrane covering it, in an old patch of leukoplakia, which had been irritated by a badly fitting plate.

In the fourth case, the patient had been aware of an area of irritation on the spot on which his pipe rested for years. A fibroma developed in this area, and later cancer.

TABLE 4.—SUMMARY OF PRECANCEROUS LESIONS IN CANCER OF THE TONGUE

Precancerous Lesions	No. of Cases
Leukoplakia	41
Bad teeth	47
Area of irritation	12
Ulcer	43
Syphilitic gumma	1
Wart	5
Fibroma	4
Smoker's burn	1

Smoker's Burn.—On the lip, this is a very common precancerous lesion; but on the tongue and floor of the mouth, it is one difficult to determine. I am of the opinion that a localized area of leukoplakia, of irritation, or a definite ulcer or fibroma may be due to the repeated burning from hot smoke. But in our records, I can find but one definite notation of a smoker's burn.

Pain.—Pain before the appearance of any other symptom has not been recorded as the symptom of onset.

Comment.—Therefore, in 154 out of 160 cases of cancer of the tongue we have a pretty definite history of a precancerous lesion. In the remaining six cases, the histories are too incomplete for any data. In the forty-three cases of ulcer, the histories are incomplete as to the lesion which preceded the ulcer.

There is not a lesion here that the ordinary individual could not recognize himself. All that the patients need to know is that it is a warning which should be immediately heeded by seeking the advice of a competent physician, who, with the aid of the dentist, should immediately remove the cause, and, if the lesion does not promptly disappear, refer the patient to a competent surgeon for proper treatment.

Fig. 11 (Pathol. No. 8574, JCB. 2092.—The ulcer on the under surface of the tip of the tongue had been present three months; factors, tobacco and irritating teeth; Wassermann reaction, negative; very little induration; complete excision; microscopically no tuberculosis or cancer; death eight years later of tuberculosis of the lungs.

PREVIOUS TREATMENT IN ONE HUNDRED AND SIXTY CASES OF CANCER OF THE TONGUE

Excision of Piece for Diagnosis.—From my experience, this is unnecessary and may be dangerous. When the lesion is early and small, it is no more difficult to excise the area, with a good margin of mucous membrane and muscle, with the cautery; then a sufficient local operation has been performed, irrespective of the microscopic finding. This has always been my own rule, and I have never mutilated a patient with a benign lesion and never given a malignant lesion an insufficient margin. In advanced, hopeless and inoperable carcinoma, the excision of a piece for diagnosis is unnecessary.

The safest rule in excising a piece for diagnosis, if it is to be done at all, is to have it done by the surgeon who is to be responsible for the treatment and not by one inexperienced in the diagnosis and surgery of cancer of the tongue. Unfortunately, as a rule, in these sixteen cases, the piece was excised by one who was unwilling and untrained to assume the responsibility of further treatment after the diagnosis of malignancy had been made from the piece excised.[3]

TABLE 5.—PREVIOUS TREATMENT

Treatment	Cases				
	Early Malignant	Advanced	Hopeless	Inoperable	Total
Excision of piece for diagnosis	4	7	5	..	10
Extraction of teeth	3	10	5	3	21
Radium	4	2	2	2	10
Roentgen rays	1	3	1	..	5
Cautery	..	..	1	..	1
Caustics	7	15	9	5	36
Antisyphilitic	7	13	6	1	27
No treatment and no note	..	..	..	..	44
					160

PREVIOUS EXAMINATION BY PHYSICIANS OR DENTISTS

In going over the histories, I have recorded as a previous examination by a physician only those cases in which the examination was not followed by immediate appropriate treatment; that is, a member of the medical profession was a party to the dangerous delay. Of these fifty-four physicians, twenty-seven gave antisyphilitic treatment, others caustic treatment, or radium or roentgen rays.

The thirty-three dentists noted are those who extracted teeth or did some dental work without recognizing the malignant lesion of the mouth, and who were, therefore, through their inexperience, parties to the delay. I take the position that it is not the fault of the dentist, but of the members of the medical profession in the great clinics throughout this country who have not published their data and thus given the members of the dental profession an opportunity to become familiar with the various types of the local lesions of the oral cavity which may develop into cancer, or which are cancer when they come under the observation of the dentist because of some required dental work.

TABLE 6.—PREVIOUS EXAMINATIONS

	Cases				
	Early Malignant	Advanced	Hopeless	Inoperable	Total
Consulted physician	15	23	7	9	54
Consulted dentist	7	14	6	6	33

3. Further data are given in the reprints.

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To a large extent, the decrease in the number of deaths from cancer of the oral cavity is in the hands of the dental profession.

BENIGN LESIONS OF THE TONGUE AND FLOOR OF THE MOUTH

The types and numbers of benign lesions of the tongue of which I have records are: leukoplakia, 27; fibroma, 8; warts, 14; ulcer, 15; hypertrophied papillae, 8; cysts, 3; area of irritation, 12; tuberculosis, 15; syphilis, 4; geographic tongue, 2; angioma, 0; pellagra, 1; general stomatitis, 8, and fissures (cracks), 5.

The eight cases of general stomatitis and the five cases of fissured tongue are in combination with other lesions. The total number of benign lesions is 109. Four cases have been observed since Table 1 was made, recording 105 lesions.

Leukoplakia.—There were thirty-three cases of leukoplakia first observed in the benign stage. In nine of these, the Wassermann reaction was positive (27 per cent.). I have already noted that among 160 cases of cancer, leukoplakia was noted in forty-one cases, with nine positive Wassermann reactions (21 per cent.). Leukoplakia, therefore, is the most common benign lesion of the mouth that has come under observation. As a precancerous lesion, it ranks second to bad teeth (leukoplakia, forty-one cases; bad teeth, forty-seven cases).

Fig. 12 (Pathol. No. 27351, JCB. 10267).—Area of irritation on tip of tongue; slightly elevated, smooth, red, opposite a ragged tooth; of one month's duration; no tobacco; Wassermann reaction, negative; healing after smoothing tooth.

Benign leukoplakia has been seen in combination with fibroma four times, with hypertrophied papillae twice. In these six cases, the Wassermann reaction was negative. Benign leukoplakia and benign wart have been seen in combination in one case; the Wassermann reaction was positive.

As a rule, a warty growth associated with leukoplakia is very suggestive of beginning cancer.

Duration of Benign Leukoplakia.—The longest duration was fifteen years and was associated with a fibroma. This patient is well eleven years after observation and now has a clean mouth. The average duration of the leukoplakia in the benign group is less than one year. There are only four cases between one and five years.

It is very encouraging to note that in the last five years most of the patients with leukoplakia have sought advice and have had the causes removed within one year or six months after the onset.

In the majority of cases of cancer which have developed in areas of leukoplakia, the lesion had been present and recognized from five to thirty years. There are a few cases in which the disease was of apparently shorter duration.

Leukoplakia is a distinct lesion. It is a white patch in the mucous membrane, resembling somewhat a patch of enamel paint. On palpation, it is distinctly recognized from the surrounding mucous membrane; it is harder and leathery in consistency. As long as the leukoplakia shows no tendency to crack or peel off, or form an ulcer, there is no indication for any treatment other than removal of the causes—tobacco, teeth, and syphilis when the Wassermann reaction is positive. The moment a patch of leukoplakia splits, scales, or desquamates and leaves an ulcer, the area should be excised with the cautery.

In my group of thirteen cases, excision has been practiced but four times. In every case of benign leukoplakia, as well as in cancer in leukoplakia, there is a definite history of excessive use of tobacco. While in forty-one cases of cancer in leukoplakia, there is a definite note of dirty, rough teeth in twenty-seven cases; in the benign leukoplakia, a similar bad condition has been recorded in all but one.

Results in Benign Leukoplakia.—Practically all of these twenty-seven patients have been followed up to date. The cause of the lesion has been removed, and none so far have developed cancer. It is interesting to note that I saw benign leukoplakia for the first time in 1911, and since then with each succeeding year, the number of cases observed by me is increasing, and, as a rule, the duration is shorter—a very satisfactory result of the educational propaganda.

Examination of the Oral Cavity.—As leukoplakia may be situated on any part of the mucous membrane of the oral cavity, it seems most appropriate to discuss the routine method of examination. This consists of inspection and palpation.

Inspection: This is best performed in a dark room with pencil hand electric light which can be inserted in the mouth. The tongue is inspected, grasped with a piece of gauze, pulled out, and the papillae of the base, especially on the sides, carefully studied. One should look underneath the tongue and at the floor of the mouth; at the mucous membrane fossae behind the molars; at the gums on both sides of the teeth, and should examine the mucous membrane at the angle of the mouth and the hard palate.

Leukoplakia, as a rule, first appears at the angle of the mouth and behind the molars, at the tip and along the border of the tongue. The presence of even a small patch of leukoplakia is an indication that the patient is sensitized to tobacco and should discontinue its use in any form, at least until the leukoplakia has disappeared. The teeth should be inspected for sharp points, cavities and pyorrhea. If a plate is worn, pressure areas should be looked for.

Palpation: This is of the greatest importance and often tells more than inspection, and to interpret it, one must be familiar with the normal palpation of the tongue, the floor of the mouth, the gums, and the hard

and soft palate. Both hands should be washed; the fingers of the right hand placed in the mouth, and the patient instructed to relax the tongue as much as possible. The fingers should be passed over all areas of mucous membrane and the sense of touch of the involved area compared with that of the other areas. The tongue should be pinched between the thumb and the index finger; the floor of the mouth examined with the fingers in the mouth and below on the neck. This palpation will bring out the induration which, as a rule, is a sign of early cancer. Leukoplakia can be distinguished by palpation only.

This thorough inspection and palpation of the oral cavity had rarely been properly done in patients referred to me.

This routine and complete physical examination of the oral cavity by palpation and inspection can be developed to a high state of perfection, just as the physical examination of the chest and abdomen.

If the results of the examination indicate a distinctly benign lesion, the patient should be referred immediately to a dentist to have any indicated dental work done. If, however, the local lesion has reached the stage in which immediate excision is indicated, the dental work should be postponed until after the operation.

Treatment of Leukoplakia.—One should explain to the patient why the use of tobacco should be discontinued in all forms. He should be placed under the care of a competent dentist; directions should be given to wash the mouth frequently with a solution of sodium bicarbonate. He should be required to return for repeated examinations at stated intervals, until it is well established that there is no area which requires excision.

Fig. 15 (Pathol. No. 16058, JCB. 5742).—Early malignant; typical small cancer ulcer on base of tongue, with induration of cancer; excised with cautery; well (1921) after seven years; ulcer of three months' duration.

This condition of leukoplakia will be described in greater detail in a separate article, as it is one of the most important precancerous lesions of the mouth and should be well understood by both the medical and dental professions. I am unable to find any comprehensive article on this subject.[4]

BENIGN AND MALIGNANT LESIONS OF THE TONGUE IN WOMEN

During the period that we observed 265 lesions in men, there have been but forty-five in women. While the total percentage in men is 40, the total percentage of benign lesions in women is 75.

Table 6 shows the effect of the educational propaganda. In the first decade there are four cases—all malignant. It is interesting to note that three of these were in colored patients. One example of early cancer has been lost track of; the one with advanced cancer died within sixteen months of recurrence; two cases (50 per cent.) were hopeless and inoperable.

TABLE 7.—SUMMARY OF LESIONS OF THE TONGUE IN WOMEN

	1920-1921 Cases		1910-1920 Cases		1900-1910 Cases		1889-1900 Cases		Totals Cases	
	No.	%	No.	%	No.	%	No.	%	No.	%
Benign lesions	8	100	23	82	2	40	..		33	75
Early malignant	..		1	3.5	1	20	1	25	3	6.6
Advanced cancer	..		1	3.5	1	20	1	25	3	6.6
Hopeless cancer	+		3	10	1	20	2	50	5	11
Totals	8		28		5		4		45	

The data as to etiologic factors in these four women are incomplete.

In the second decade (1900 to 1910) the percentage of benign lesions is only 40. The two benign lesions were wart and fibroma. Of the three malignant lesions the early and advanced cancer have been cured; one was inoperable.

The third decade (1910-1920) illustrates best the results of the program of education. There are twenty-three examples of benign lesions or 82 per cent. Of the five malignant tumors two were operable.

In the beginning of the fourth decade since 1920, only benign lesions of the tongue have been observed in the female.

The types and numbers of benign lesions of the tongue in thirty-three cases in women were: leukoplakia, 2; fibroma, 3; warts, 4; ulcer, 3; hypertrophied papillae, 9; cysts, 2; area of irritation, 8; tuberculosis, 0; syphilis, 1; geographic tongue, 0; angioma, 1; pellagra, 0; stomatitis, 2, and fissures, 0.[3]

MALIGNANT DISEASE OF THE TONGUE IN WOMEN

Fifty per cent. have been inoperable or hopeless—a somewhat worse showing than in men (31 per cent.). Of the three early malignant cases, two patients (66 per cent.) have been cured; one was lost track of. This corresponds to the 62 per cent. of cures in men. Of the three advanced cases, two patients (66 per cent.) have been cured, and one died of a recurrence. This is a better result than in men, in whom we have cured only 12 per cent.

It is yet to be proved that cancer of the tongue may develop in women who do not use tobacco in any form; but it is my opinion that one's attitude toward distinct local lesions on the tongue and floor of the mouth in women should be the same as in men whether there is a history of the use of tobacco or not.

CONCLUSIONS

The guiding rule should be not only the early recognition of cancer of the tongue, but the recognition and

4. Other benign lesions are discussed in the reprints.

appropriate treatment of the benign lesions which precede cancer by months or years, and the recognition of the causes of these lesions—tobacco and irritating teeth.

The message to the people is short and simple; but the message to the medical and dental professions must be in great detail, because if the people seek advice early, the profession must be prepared to recognize the early precancerous stage or the earliest stage of cancer when diagnosis is difficult and proper treatment simple.

SHORT RÉSUMÉ OF THE EDUCATIONAL PROPAGANDA

It is strange but true that surgeons for years have been content to employ the tedious, difficult operative treatment of cancer when they knew that their operative mortality was high and their permanent results low. Surgeons must have concluded for years that the ordinary patient, without specific information, rarely, if ever, sought advice in the precancerous stage, and seldom and accidentally in the earlier and more favorable operative stage of malignant disease.[3]

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THE SURGERY OF THE TRIGEMINAL TRACT *

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It is quite within the memory of most of us when J. Ewing Mears of Philadelphia, in 1884, first proposed the removal of the gasserian ganglion and when Hartley of New York, in 1891, first performed this operation

Fig. 1.—Subtotal division of sensory root according to author's technic. The innermost fasciculus of the root has been isolated on a hook. The remainder of the root has been sectioned.

by the so-called Hartley-Krause method, at that time and for many years afterward thought to be a venturesome and hazardous bit of brain surgery. And most of us, too, will remember that paper of Tiffany's, published in the Transactions of the American Surgical Association in 1896, which recorded with pride, at that time seemingly justified, a mortality of 22 per cent. And then still later that contribution by the indomitable Keen,[1] so frequently quoted, who reported the results of eleven extirpations of the ganglion. It is a far cry from that day to this—a span of thirty years—when

Fig. 2.—Exposure of sensory root of gasserian ganglion as recommended in our technic. Note that the root is exposed throughout its entire course in the middle fossa.

the number of operations on the trigeminal tract is expressed in hundreds, and of these increasing opportunities, advantage has been taken to remove the hazards and to minimize the risks, so that today it is one of the least dangerous of the major operations. Even as late as 1914, Da Costa in his Modern Surgery places the mortality at between 10 and 17 per cent., whereas in the last 177 consecutive operations I have had but one operative fatality.

During this period of evolution from 1891 to the present, the peripheral operations of the terminal branches of the several divisions have been abandoned, and alcoholic injections have taken their place. During the same period, operations on the gasserian ganglion have been replaced, with trivial exception, by operations on its sensory root. The procedures which I have included in the title of this communication under "The Surgery of the Trigeminal Tract" are: (1) subtotal resection of the gasserian ganglion; (2) resection of the sensory root, subtotal; (3) resection or avulsion of the sensory root, total, and, (4) resection of the motor root.

SUBTOTAL RESECTION OF THE GANGLION

For these intracranial procedures the approach is the same. The manner of approach takes into consideration two equally important matters: (1) the cosmetic result and (2) convenience of access to the ganglion and its root. Intense as their suffering is, patients invariably inquire whether there will be any disfigurement, and their preconceived notion of disfigurement, facial paralysis and loss of sight must be set at ease. Even today this conception of the untoward effects of

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Keen, W. W.: Am. J. M. Sc. 116, 1898.

the operation is carried in the minds of many physicians and is transmitted in turn to their patients. The incision should be concealed within the hair line and must be anatomically correct; by that I mean must avoid the temporal branches of the facial nerve, which supply the occipitofrontalis, the orbicularis palpebrarum and the corrugator supercilii muscles. My approach to the ganglion differs from others in that it involves the fashioning of two flaps; a cutaneous flap, which is reflected forward, and a musculo-aponeurotic flap, which is reflected backward. When these flaps are reflected in either direction and sutured to the wound draperies, there is no need for retractors or retraction. An avenue is opened through the temporal fossa wide enough at all times to give the operator an ample and unobstructed view of the structures with which he has to deal. No one knows why a transitory facial paralysis once in a while follows the major operation. Many hypotheses have been advanced; but leaving speculation and coming to the facts, I know that since I have

Fig. 3.—Elevation of the sensory root before its avulsion for exposure and identification of the motor root. The latter may be seen beneath the retractor.

adopted the flap operation and have had ample access without retraction, there has not been a single instance of facial paralysis in a series now including more than 121 consecutive operations. After the first fifty operations there were three cases, and after the second fifty operations there were four cases; since then there have been none.

I make no attempt to correlate those facts. Experience is the wisest teacher. Having had no involvement of the facial nerve since the introduction of the flap operation, and having seen seven cases before that, there seemed to me but one logical course to pursue.

There is no simpler way of controlling hemorrhage from the middle meningeal artery than by plugging the foramen spinosum with cotton. The artery can then be cut, as it should be, without fear of hemorrhage either during the operation or subsequent thereto. Should there be a drip from the peripheral stump at the conclusion of the operation, a tiny muscle graft superimposed will control it.

I have included in this discussion partial resection of the ganglion, as proposed by Hutchinson, not for approval but for disapproval. Hutchinson maintains that a partial resection of the ganglion is equivalent to avulsion of the sensory root as to permanency of results. Harris,[2] on the other hand, states that this operation is not a "certain permanent cure," as he has seen three cases of relapse in patients on whom Hutchinson had performed his operation. Hutchinson maintains further that his operation is simpler and therefore less hazardous. In substantiation of this statement, he quotes statistics from his own and from Horsley's experience with 200 cases with a mortality of less than 5 per cent. These results he characterizes as "surely satisfactory enough." I maintain that the operation is more difficult than that on the sensory root, and my position is sustained by the fact that no one of those who have expressed their views in the current literature of any country advocates the Hutchinson operation but Hutchinson himself.

Fig. 4.—In a case of bilateral trigeminal neuralgia the patient is able to masticate food and keep the mouth closed by virtue of the fact that the motor root has been conserved.

SUBTOTAL RESECTION OF SENSORY ROOT

Now the operation on the sensory root, as we practice it, implies an exposure of the root not only at its entrance to the ganglion but from that point back to where it enters the middle fossa through an oval space in the tentorium, that is, throughout its entire course in the middle fossa. This is essential, and to secure this exposure the dura must be separated entirely from the anterior surface of the petrous bone. This free and wide dural separation, not only at the base, but on either side of the orifice in the temporal bone, practically throughout the middle fossa, is essential for the exposure of the root with a minimum of trauma to the uplifted temporosphenoidal lobe. The sensory root thus exposed may be dealt with in one of several ways: It may be avulsed, that is, torn free from its attachment to the pons; it may be merely cut across; the root may be severed in its entirety or only in part; the motor root may be sacrificed with the sensory root, or the motor root may be conserved.

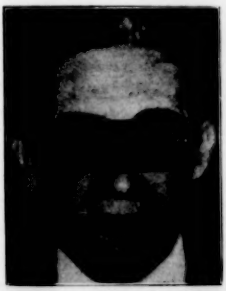

Fig. 5.—After the operation, a section of the motor root of the trigeminal nerve, the patient is able to open the mouth as he could not before.

2. Harris, W.: Brit. M. J. 1:693 (May 22) 1920.

First, a word as to what I may refer to as subtotal resection of the sensory root (Fig. 1). By this expression, I imply leaving one of the inner fasciculi intact. We recognize tropic keratitis as a complication of varying incidence following the radical operation. To be sure, when recognized promptly and treated properly, the epithelium rapidly proliferates and within forty-eight hours the defect in the cornea is repaired. But can we eliminate this complication altogether? Possibly by leaving one or two of the inner fasciculi of the root intact. We know there are subdivisions of the ganglion corresponding to each of the peripheral divisions, ophthalmic, maxillary and mandibular. May there not be corresponding representations of those subdivisions in the root? I believe there are, and if the portion of the root corresponding to the ophthalmic division is not divided, one might assume with reason that corneal complications may be altogether eliminated. One presupposes, of course, that this subtotal resection would be appropriate only when pain was not referred to the first division. I wish now merely to put on record a series of cases in which this modification of the radical operation was practiced within the last two years. Up to the present time, there has been no recurrence; but before approval or acceptance, the operation must stand the test of a longer period of time. Should there be an expression of pain in those cases now under observation, any merit the operation might otherwise have would have to be disregarded. It is not at all a difficult matter to isolate the innermost fasciculus of the sensory root as implied in subtotal resection. The sensory root having no sheath is of very loose texture. One can readily see with the naked eye the individual fasciculi, and with a suitable instrument, one can separate the fasciculus to be conserved from those to be divided.

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TOTAL RESECTION OR AVULSION OF THE SENSORY ROOT

Speaking now of total severance of the sensory root. Is it a matter of any consequence whether the root is avulsed, that is, torn from its attachment to the pons, resected, or merely sectioned? So far as the physiologic effect is concerned, there can be no difference in the end-results, no matter by which of these three methods the continuity of the root is broken. The sensory root cannot regenerate, and its mere division implies, as Van Gehuchten once said, the physiologic extirpation of the ganglion. From the technical standpoint, one method can be executed as readily as the other. It should, however, be stipulated that it is difficult, if desired, to conserve one or two of the fasciculi when avulsion is practiced. The traction on the root in avulsion will carry away all the fasciculi.

The most recent modification of the radical operation has to do with the conservation of the motor root. In an earlier communication, I called attention to the possibility of conserving the motor root, but since that communication, with repeated opportunities to put this modification into effect, I can speak now with greater confidence. To execute this step of the operation it is essential that the sensory root be liberally exposed throughout its course from ganglion to tentorium (Fig. 2). Only by this liberal exposure will it be possible by elevating the root to secure an adequate view of the motor root, which as you know is immediately beneath the sensory root. Though not so large as a single fasciculus of the sensory root, the motor root with experience may be thus exposed, and should there be any doubt as to its identity this doubt is at once dispelled by stimulating the root with an electrode and observing a contracture of the fibers of the temporal muscle on either side of the wound of entrance. The exposure of the motor root (Fig. 3) is so easily obtained that one wonders why for so many years it was needlessly sacrificed. While prolonging the operation somewhat, the additional time is well spent in preventing what we once regarded as inevitable atrophy of the temporal, masseter and pterygoid muscles. This is of advantage not only from the standpoint of cosmetics or of the greater ease of mastication but also because it at once solves the problem of how to deal with bilateral neuralgia. Hitherto one was at a loss to know what to do for the relief of the major trigeminal neuralgia which developed on the side opposite that on which the major operation had already been performed.

In 1920, I avulsed the sensory root on the right side in a patient aged 57 (File No. 62943), who had a bilateral trigeminal neuralgia (Fig. 4). The operation was performed on the side on which the pain was of the longest duration and of greatest intensity. The motor root was conserved. The pain on the opposite side was in the third division, and before the patient left the hospital, to afford her at least temporary relief, I gave her an alcoholic injection. Immediately afterward, the patient could not close the mouth at all. This was anticipated for I have observed that, even though the motor root is intact, the trauma incidental to the operation arrests for a short time its function. But function is soon reestablished, as it was in this case, so that within a few months the patient could close the jaw and masticate food.

RESECTION OF THE MOTOR ROOT

Finally, should occasion arise, one may divide the motor root and leave the sensory root intact. There happened in my clinic a patient with a bilateral trismus, a spasmodic condition of the muscle supplied by the motor root of the trigeminus, a condition analogous to facial tic or spasm. Attempts had been made on several occasions by alcoholic injection of the mandibular division to control the spasm, but with only transitory relief. The jaws were, for the greater part of the time, clenched, to the great discomfort of the patient. That the motor spasm might be controlled in part by section of the motor root on one side seemed a logical deduction (Fig. 5). The operation was unattended with any difficulty, and the patient enjoyed a considerable measure of relief.

CONCLUSION

It is just twenty years since the sensory root operation, as proposed by Spiller, was first performed. It has more than fulfilled the claims of its sponsor as safer than a gasserectomy, yet with all the assurance of permanent relief. In these two decades, the modifications of the technic in minor details have been made from time to time until today the operation might be said to be a finished product. I confess to having had two recurrences in a series of 221 operations. These recurrences should not be charged to the principle underlying the sensory root operation. They were due in these two cases to errors in technic, for I found at the secondary operation, performed twelve years later, that in both instances a portion of the root had not been divided at the first operation. I had some misgivings in attempting a second operation in the same field,

fearing difficulties from adhesions, and was agreeably surprised to find that the second operation was as free from technical difficulties as the first.

It would seem as though the major operation for trigeminal neuralgia had reached a stage of perfection that left nothing to be desired. Yet so many advances have been made in surgery and are being made, that one cannot tell what the future may hold. Satisfactory as the technic now is, satisfactory results will follow only when proper discrimination has been exercised in the selection of cases. The operation should be reserved for what we call major trigeminal neuralgias, or if you choose, Fothergill's disease. When mistakes in diagnosis are made, it is quite possible, if not probable, that the operation will afford little if any relief. Our mastery of the treatment of major trigeminal neuralgia clears the field for study of those other forms of neuralgia, which, while in the trigeminal zone, do not originate in any lesion of the nervus trigeminus, and are not relieved by any operation on it. Our thoughts are now directed to the sympathetic system. What part the sphenopalatine ganglion may play in the etiology of these atypical forms is a question deserving thoughtful consideration. Accumulating evidence in my clinic has at least aroused our suspicion. It may be that the next advance in the surgery of neuralgias will deal with the resection of the sphenopalatine ganglion. The technic for its removal is now engaging our attention. A decade hence it may be included among the conventional surgical procedures.

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ABSTRACT OF DISCUSSION

DR. GILBERT HORRAX, Boston: Even at the present time a great many members of the profession regard the operation as one of extreme danger. The best proof for this is the fact that a large number of patients suffering from trigeminal neuralgia are referred by other patients to the surgeon rather than being referred by their physicians. The operation is almost free from mortality. It is a very arduous, tiresome and sometimes a painstaking procedure. At the Brigham Hospital there have been 345 consecutive cases without a death. As to the subtotal resection of the sensory root for the ganglion, I think I would differ from Dr. Frazier a little. So far as we know all the evidence goes to show that true tic douloureux is absolutely a progressive disease; it progresses from one division to another. We have found that it always progresses in time over all three divisions. It will be interesting to see how long Dr. Frazier's patients go without return of pain in the ophthalmic division. However, eye complications are very slight, 10 per cent., at the most. There are four or five distinct types of neuralgia which are increasingly drawing our attention and in which operations have been done without any benefit at all. That brings up the question of alcoholic injections. They are sometimes of use in differentiating the types of neuralgia. Alcohol injection gives complete relief that will differentiate trigeminal from other neuralgias perfectly. The only other point about the injection is sometimes when you are in doubt as to whether to do complete sensory root avulsion or not, an alcoholic injection will give a temporary anesthesia over the area involved and thus get the patient used to what he will necessarily have to go through—the entire numbness of the face after sensory root avulsion.

The Fundamental Physiologic Requirements of Muscular Performance.—O. Riesser discusses, from the therapeutic standpoint, the various factors that influence muscular performance, such as drugs, diet and, above all, physical exercise. In the multiplicity of its forms, its capacity for exact dosage and graduation of its effect, physical exercise is one of the most potent weapons for bringing a general systematic influence to bear on the organism as a whole.—*Therapeutische Halbmonatshefte* **34**: 589, 1920.

THE WHITMAN LOOP OPERATION FOR EQUINOVALGUS *

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It is common knowledge that the tibialis anticus muscle is frequently irreparably damaged by an attack of infantile paralysis. Thus a very important dorsal flexor and adductor is lost, and the foot cannot be dorsiflexed to the normal degree or adducted when at a right angle to the leg. Frequently, too, the tibialis posticus muscle is paralyzed or weak, and there is no power of adduction of the foot even in equinus. In a limb in which the tibialis anticus is paralyzed and the tibialis posticus is paralyzed or

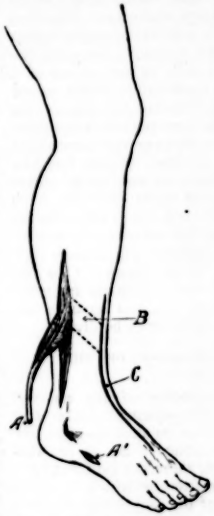

Fig. 1.—Technic of loop operation: *A*, peroneus brevis tendon; *A'*, distal part of peroneus brevis; *B*, direction of transplantation of peroneus brevis; *C*, median incision for exposure of dorsiflexor tendons.

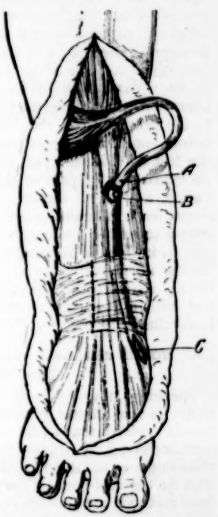

Fig. 2.—*A*, peroneus brevis tendon; *B*, *C*, distal part of tibialis anticus tendon.

weak, the foot is in an attitude of equinovalgus. The valgus is usually the more prominent element of the deformity. If the attitude of equinovalgus is permitted to persist, the Achilles tendon and the peroneus tendons become contracted and a resistant deformity results. With an equinovalgus deformity the individual walks badly and with a marked limp. In analyzing the deformity of equinovalgus we find, in addition to the contraction of the heel cord and peroneus tendons, two important factors: (1) During dorsal flexion the foot invariably goes into valgus, the dorsal flexors are displaced to the outer side of the foot, and the tendon of the peroneus tertius is very prominent. (2) The dorsal flexor tendons are frequently unable to raise the foot to a right angle. The correction of

* Read before the Section on Orthopedic Surgery at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

this deformity therefore involves two problems: (1) To place the dorsal flexor tendons so that when they function they will hold the foot in a normal or neutral position in relation to the leg. (2) To reinforce the dorsal flexors by transplantation of other tendons. The loop operation was devised by Dr. Royal Whitman to meet these problems.

The loop operation consists of the following essential steps: (1) The displacement of the dorsal flexor tendons to the inner side of the foot. The displacement is assured by looping the distal part of the tendon of the tibialis anticus about the dorsal flexors and implanting it into the tibia. (2) The transplantation of the peroneus brevis to the inner side of the foot, preferably through the sheath of the tibialis anticus, whose function it is to perform. As the peroneus brevis is not as strong as the tibialis anticus, it is reinforced by transplantation of the peroneus tertius and extensor proprius hallucis to the inner side of the foot. The transplantation of the peroneus tertius is a very important part of the loop operation and has a dual advantage. First, this muscle helps to dorsiflex the foot in an improved attitude. Secondly, by being displaced from its normal position, the muscle is removed as a factor in the causation of the valgus. The peroneus tertius has always been considered small in size and of little consequence. Dr. Whitman and I have, however, in a number of cases found this muscle to be surprisingly large. At times its muscle belly was three-fourths inch in diameter. Clinically it appears of primary importance in maintaining valgus. The peroneus brevis is transplanted through the sheath of the tibialis anticus because it seems reasonable to assume that in this position it will have, by virtue of its direction and location, the best opportunity to duplicate the function of the tibialis anticus.

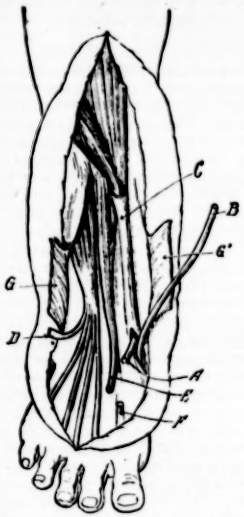

Fig. 3.—Peroneus brevis tendon pulled through sheath of tibialis anticus; *B*, distal free portion of tibialis anticus tendon; *C*, sheath of tibialis anticus; *D*, peroneus tertius tendon; *E*, *F*, proximal and distal parts of extensor proprius hallucis tendon; *G*, *G'*, annular ligament.

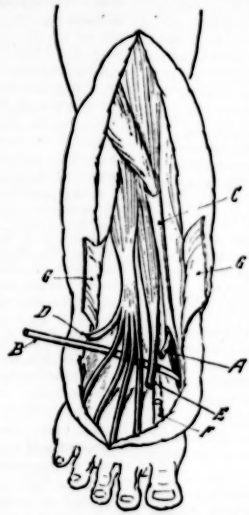

Fig. 4.—*A*, peroneus brevis tendon; *B*, tibialis anticus tendon; *C*, sheath of tibialis anticus tendon; *D*, peroneus tertius tendon; *E*, *F*, proximal and distal parts of extensor proprius hallucis tendon; *G*, *G'*, annular ligament.

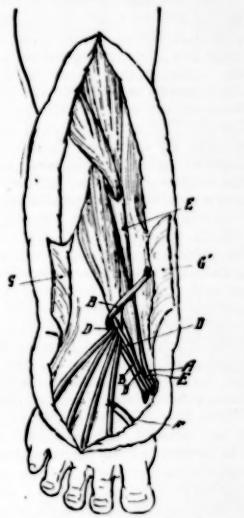

Fig. 5.—*A*, peroneus brevis tendon, *D*, peroneus tertius tendon, and *E*, extensor proprius hallucis tendon, sutured at site of attachment of tibialis anticus tendon; *B*, tibialis anticus tendon looped about dorsal flexors and implanted into tibia; *F*, distal part of extensor proprius hallucis sewed to neighboring dorsal flexor tendon to prevent toe drop.

TECHNIC OF THE LOOP OPERATION

A vertical incision is made over the lower half of the external surface of the leg down to a point behind the external malleolus. The sheath of the peroneus muscles is incised and the peroneus brevis separated from the peroneus longus. An inch incision is then made over the proximal part of the fifth metatarsal bone and parallel to the external border of the foot. The tendon of the peroneus brevis is identified and is cut from its attachment. This tendon is inserted over an area of about three-fourths inch, and its attachment must be thoroughly separated. The tendon in the upper incision is elevated with a dull instrument and pulled out from its sheath. It is then separated from the fibula for about 3 or 4 inches above the malleolus. In this procedure some of the muscle fibers have to be torn away from the fibula.

An incision is then made over the middle of the ankle, extending from several inches above the ankle joint down to about the middle of the metatarsal region. The skin and subcutaneous tissue on both sides of the incision are elevated so as to expose all of the tendons on the front of the ankle. In order to avoid subsequent sloughing of the skin, the subcutaneous tissue should be elevated together with the skin. On account of the thinness of the skin and the scant amount of fatty and areolar tissue, it is important to avoid rough manipulation or tearing with sharp instruments. A small transverse incision is

then made in the sheath of the tibialis anticus about 2½ inches above the ankle, and the tendon of the tibialis anticus is cut. The tendon of the peroneus brevis is then brought over to the front of the leg through a subcutaneous tunnel, and sewed with a single suture to the distal part of the tendon of the tibialis anticus. The distal part of the tibialis anticus tendon is then pulled out of its sheath, and at the same time the peroneus brevis is pulled into it. When the tendon of the peroneus brevis emerges through the lower pole of the sheath of the tibialis anticus, the suture holding it to the tibialis anticus tendon is cut. A strand of No. 2 or 3 catgut is then attached securely to the tendon of the peroneus brevis. The distal part of the tendon of the tibialis anticus is now loose in the wound.

The annular ligament of the ankle is now cut just below and in front of the external malleolus. The peroneus tertius is cut at its attachment; it is freed from the surrounding tissues to a point a little above the ankle so that it can be displaced inward. It is then passed in front of the other dorsal flexors and brought into contact with the tendon of the peroneus brevis. Recently we have been transplanting this muscle through the sheath of the tibialis anticus together with the peroneus brevis. The tendon of the extensor proprius hallucis is then cut near the corresponding metatarsophalangeal joint, its distal end is sewed to one of the common dorsal flexor tendons, and its proximal end is brought over and sutured to the peroneus brevis and peroneus tertius tendons. With a dull instrument the dorsal flexor tendons are raised up and displaced inward. The tendon of the tibialis anticus is then passed behind all the dorsal flexors from within outward, and then in front of them from without inward to be attached later to the tibia. This looping of the tendon of the tibialis anticus about the dorsal flexors assures the inward displacement of these tendons and gives the operation its name.

The foot is then brought to a right angle. If this is not possible, the heel cord is cut subcutaneously. The tendons of the peroneus brevis, extensor proprius hallucis and peroneus tertius are then sewed to one another and passed through a slit in the tibialis anticus tendon and attached with kangaroo sutures to the bone and other structures at the site of attachment of the tibialis anticus. This attachment must be made secure and covered up with a layer of subcutaneous tissue so that there will be no chance of slipping. The tibialis anticus is then implanted into the tibia. In implanting this tendon it is important that the foot be in about 100 degrees of plantar flexion. If the foot is at a right angle or less than a right angle, the result will not be good because walking will be awkward; and, if the calf muscles are weak, a resistant calcaneus will develop.

The wounds are then closed with several layers of catgut sutures and the limb is put up in a plaster foot bandage with the foot adducted and forming an angle of 100 degrees with the leg.

POSTOPERATIVE CARE

As soon as the sensitiveness of the foot has disappeared, the patient may be permitted to walk. This usually takes a week or ten days. The plaster-of-Paris bandage should be removed at the end of about four weeks. The patient is then provided with a flat foot brace and the shoe is raised from one-eighth to one-fourth inch on the inner side. An important point in the after-care is the retention of the foot continuously in the median line or in slight varus and at about a right angle to the leg. To this end a posterior splint is advised for the night. When the original plaster bandage is removed, there is only slight voluntary motion in the foot. Within a few days this motion increases and can be further increased by massage, manipulation and muscle training, always bearing in mind to instruct the patient to hold his foot in the median line. The favorable range of motion for the foot in which the loop operation has been performed is from 80 degrees dorsal flexion to 120 degrees plantar flexion. It is well, therefore, that the foot be manipulated to retain this range of mobility. To make this possible, the tibialis anticus tendon must not be too short. In cases in which it was triced up too much, a moderate degree of calcaneus resulted.

RESULTS OF THE LOOP OPERATION

The loop operation was performed thirty-two times on thirty patients, two of the patients requiring the operation on both feet. The ages of the patients varied from 4½ to 28 years. The duration of the paralysis ranged from three to twenty-six years; in twenty-three cases the paralysis had existed from three to four years. The transplanted peroneus muscle was active in seventeen cases, inactive in three cases, and in the others there was no note regarding its function.

In classifying our results, excellent was applied when the deformity was entirely corrected and remained so under weight bearing, and the function of the foot was practically normal. If the deformity was corrected but the mobility of the foot restricted, the result was considered good. If the deformity was only partly corrected and dorsal and plantar flexion restricted but the patient evidently walked better than before the operation, the result was considered an improvement. According to the foregoing classification, fourteen of our cases showed an excellent result. In ten cases the result was good. Five cases were improved and one was a failure. Two cases were not classified because there was no final note. Four of the cases here considered good had originally been classified as excellent. This change was made because the function had decreased. In two of these patients the reduction in function was due to weak dorsal flexors; in one the plantar flexion was reduced because the tibialis anticus was pulled up too tightly, and in the other case the change in function was attributed to lack of after-care. In the cases in which there was only an improvement, the records show that one or more of the calf muscles, peronei or dorsal flexors were weak before the operation, thus precluding a satisfactory result and showing the importance of selecting appropriate cases for operation. In one case there was complete failure. In this patient it was found at the time of operation that the peroneus brevis was very pale and evidently paralyzed or almost so. Hence the peroneus longus was transplanted instead. The calf muscles were only weakly active. The result was, as we might have expected, a resistant varus and a failure.

The loop operation is intended for the permanent correction of paralytic equinovalgus in a foot in which all of the muscles about the ankle except one or both of the tibiales are strongly active. If the muscles are only weakly active and the condition is one of prac-

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tically a dangle foot, the result will not be satisfactory for, on account of the muscle weakness, the implantation of the tendon of the tibialis anticus may produce a resistant varus or calcaneus. In a foot in which the calf muscle is weak and atrophied and the dorsal flexors very active, this operation is distinctly contraindicated because with the foot suspended and plantar flexion restricted by the implanted tibialis anticus the weakly active calf muscle loses its function and a calcaneus will be the result. It is also important to be sure that the untransplanted peroneus longus is strong and remains as a strong abductor. For if it is weak a resistant varus will develop. It is equally important that this operation should not be performed on a foot in which the dorsal flexors are very weak. The transplanted peroneus brevis is intended to supplement and not replace the dorsal flexors. If these muscles are weak, dorsal flexion will be impossible and an equinus will result. Thus it is evident that the results of the loop operation depend entirely on the proper selection of the cases. This operation should be performed only when the dorsal flexors, peronei and calf muscles are strongly active. In such cases the result when the proper technic has been employed will be excellent.

1 West Eighty-Fifth Street.

ABSTRACT OF DISCUSSION

DR. WALTER G. STERN, Cleveland: I have performed this operation several times, splicing all the tendons together; but with a little knowledge picked up while touring the country with a committee to investigate operations on paralyzed feet, I came to the conclusion that the thing to do here was not to sacrifice the tendon of the great toe, but to perform one or more arthrodeses on the joints of the astragalus. If one does an arthrodesis of one or more of the astragalar joints and then does the simple looping operation of Whitman, wrapping the tendon of the tibialis anticus around the common toe extensors and caring for the peroneus tertius as described, one will get the same results without sacrificing the function of the great toe.

TIDAL IRRIGATION OF WOUNDS BY MEANS OF LIQUID-TIGHT CLOSURE

WITH SPECIAL REFERENCE TO THE TREATMENT OF EMPYEMA OF THE THORAX *

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AND
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Tidal irrigation is the alternation of positive with negative pressure in the wound. The irrigation is conducted by means of our liquid-tight cap, which has already been described.[1] The residue of fluid which lies in the wound during the incidence of negative pressure is diluted with fresh fluid each time the wound is flooded, and each time the wound is drained again the resultant mixture is siphoned off into a waste vessel.

From our experience with this measure in infected war wounds we were naturally optimistic as regards the treatment of empyemas, and though the number of such cases we have had occasion to treat in this way is not large, the results obtained are quite as definite as those previously reported.

The use of negative pressure in pythorax is well established, though its value is usually attributed to the fact that it encourages expansion of the lung, little stress being laid on its power to cause hyperemia and the elimination of bacteria and pus cells over the whole extent of a thickened and infected pleura. The fact that an empyema may be cured despite failure of the lung to reexpand was strikingly illustrated by the following case:

REPORT OF CASE

S., a Canadian soldier, aged 23, gassed in France, Aug. 1, 1918, developed left-sided pleurisy and had 40 ounces of clear fluid withdrawn twelve days afterward. During the fall of 1918, he was aspirated a number of times. In January, 1919, he was admitted to Speedwell Sanatorium with a definite tubercular focus in the right lung. On admission he was thin, had a poor color and was short of breath. The heart impulse was felt outside the right nipple line, and a roentgen-ray examination revealed the left pleural space filled with fluid. Thereafter he was aspirated at frequent intervals and large quantities of thick yellow fluid, containing numerous pus cells but free from organisms, were withdrawn. Jan. 14, 1920, rib resection was performed, 70 ounces of greenish yellow pus evacuated, and a drainage tube inserted. A week later, tidal irrigation with a 5 per cent. solution of sodium chlorid was commenced. At first we used 1 foot of negative pressure, later increasing this to 3 feet, which is equivalent to 70 mm. of mercury. The cap was removed each evening (being replaced by a sterile pad) and reapplied each following day, early in the afternoon. During the first ten days, pus in enormous quantities was discharged, and thereafter the amount diminished until February 25, when it was practically nil. Operative closure of the sinus at this time would probably have succeeded. The drainage tube was removed, March 18, and the sinus closed spontaneously, March 20. Roentgen-ray examination revealed a lung collapsed to the hilum, which appeared only as a narrow strip beside the mediastinum, the remainder of the pleural cavity containing air. When last seen, in the fall of 1920, the patient had gained in weight and seemed in perfect health, although the size of his pneumothorax was not appreciably reduced.

COMMENT

The points of interest in this case are: (*a*) the probable tuberculous nature of this empyema; (*b*) the remarkable displacement of the thoracic viscera; (*c*) the unusual size of the pneumothorax which closed spontaneously, and (*d*) the fact that no secondary infection developed even though treatment was maintained for less than one third of the time.

Of a series of eight cases of chronic empyema treated by this method, the remainder were definitely pyogenic in character and had been running from one to two years prior to the commencement of treatment. Spontaneous closure of the sinus occurred in from four to six weeks. No attempt was made to hasten closure by operative interference, and hypertonic solution of sodium chlorid was the only fluid used.

TIDAL IRRIGATION

The distinguishing features of tidal irrigation as compared with other negative pressure methods of treating empyema are:

1. Owing to the nonemployment of adhesive pastes, the apparatus may be removed and replaced as easily as a compress.

2. It may be employed following either rib resection or intercostal puncture.

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Taylor, W. H.; Taylor, N. B., and Gallie, W. E.: Tidal Irrigation of Wounds by Means of Liquid-Tight Closure, J. A. M. A. 74: 1700 (June 19) 1920.

3. The closure is quite as efficient against the escape of fluid as against the entrance of air. The cap constitutes an expansile reservoir covering the mouth of the sinus; there is reciprocal interchange of fluid between it and the pyothorax with each act of respiration and each time the pinch cocks are manipulated to alternate the fluid pressure in the thorax. Likewise, the walls of the sinus and the drainage tube within it, as well as the area of skin beneath the cap, are all kept sweet and clean by constant washing. On the other hand, with a cap which operates merely to exclude air, where dependence must be placed on negative pressure, inspissation of the secretions and the use of adhesive pastes to prevent the discharges from spoiling the outer dressings, the condition of affairs beneath these dressings leaves much to be desired as regards cleanliness and the possibility of secondary infection.

4. The security afforded against leakage renders possible the use of large quantities of fluid, thus facilitating the rapid conversion of the pleural contents to the consistency of water.

One reason why tidal irrigation is more effective than simple suction in sterilizing the pleural membranes is to be found in the complete liquefaction of the contents which takes place, affording to negative pressure a perfect hydraulic medium through which its aspirating property is exerted in the remotest corners of the empyemic cavity. Notoriously, those portions of a wound that are the most difficult to render sterile are those that are the least accessible. Infections are most securely entrenched in corners and extensions of the empyemic cavity formed by bands of adhesions and the near approximation of the parietal and visceral leaves of the pleura; and it is much easier, to activate the fluid which lies in these remote extensions when it is of a watery consistency than when it is a thick cohesive substance, such as pus. This is a very important consideration as regards the evacuation of bacteria from the tissue spaces.

CONCLUSIONS

A great deal has been written lately concerning the treatment of empyema, and important advances have been made. Nevertheless, in our opinion, the mechanical fact of liquid-tight closure reopens the question of the treatment of empyema. It is not by any multiplication of the difficulties attending the management of such cases that the more perfect drainage of the pleural membranes is secured. On the contrary, the technic is so simple as to constitute an important advantage in itself. The generous dilution of fluid, the state of cleanliness inside the rubber cap, and the dryness outside, are pleasing features; and this applies whether the irrigation follows rib resection and the insertion of a large-size drainage tube or intercostal puncture and the employment of a cannula. The measure is adapted to the treatment of acute, as well as chronic, empyema.

1204 Danforth Avenue.

ABSTRACT OF DISCUSSION

DR. GORDON G. COPELAND, Toronto, Canada: Colonel Carless, consulting surgeon of the British army, said of Taylors' tidal irrigation that it is one of the new war methods destined to a permanent place in surgery. I have had a little experience with this method, using Taylors' apparatus. One was a case of empyema which had been treated by drainage for a month and was gradually getting better. Bismuth paste had been used and recovery was progressive, but slow. I asked Dr. Norman Taylor to put his apparatus on the side. At that time there was a cavity of about 3 ounces capacity. In five days that cavity was completely closed and the skin healed over. The other case was one of gangrenous appendicitis with a large amount of pus, the appendix perforated in three places. I put in two cigaret drains. On the third day, the infected material could be gotten out quicker by using the Taylor apparatus; a positive pressure of 4 inches' head of fluid was used. I allowed hypertonic salt solution to run into the wound and to be sucked out by suction of about 1 foot of water. The results were very gratifying, and the wound healed much faster that it would have done by simple drainage. In any intra-abdominal use of this tidal irrigation, positive pressure must be employed very cautiously, and be slight, otherwise infected material might be forced into the general peritoneal cavity, especially in recent cases where the walling off of adhesions were weak, but the suction or negative tension may be greater.

DR. WALTER H. TAYLOR, Toronto, Canada: The apparatus consists of a rubber cap resembling, in some respects, a tam-o'shanter. Two tubes issue from its cover, one being connected with a reservoir of fluid above, the other leading to a waste pail on the floor. Each of these tubes is provided with a clip. The cap is bandaged in position so that its interior and the interior of the wound comprise one cavity which is liquid-tight by virtue of the unleakable joint which the brim of the cap makes with the skin. To get positive pressure in the wound, open the clip on the tube leading from the reservoir and close the clip on the tube leading to the waste pail. Negative pressure is obtained by reversing these manipulations. There is no doubt that the treatment exerts a remarkable effect in chronic wound infections. It is not less serviceable in acute infections, though it is not so easy to estimate to what degree the result is due to the treatment in these cases.

THE LUMBOSACRAL REGION*

ARCHER O'REILLY, M.D.
ST. LOUIS

Last year I read a paper[1] before the American Orthopedic Association on "Backache and Anatomical Variations of the Lumbo-Sacral Region," based on a study of the roentgenograms in 300 cases of backache. In the summary of this paper I said:

The study of these plates seems to show that the sacra and sacro-iliacs may be divided into three types. Type I is seen in both males and females. Type II is distinctly a male type and Type III distinctly female. In Types I and II, overlapping transverse processes are common. It is impossible to tell, however, from the roentgen ray, whether this is merely an overlapping of the shadows or whether there is actual contact. It seems probable that where contact takes place, it is more likely to occur in Type II. Type II also seems to show more irregularities in the shape of the transverse processes, and in the structure of the sacrum and in the shape of the sacro-iliacs.

The measurements, not of great accuracy for comparative use, owing to the varying conditions, but constant in each case, seemed to show a very definite and, in many cases, a marked asymmetry.

The size and shape of the transverse processes varied greatly, and in the majority of the cases were quite asymmetrical, of distinctly different types. Even in those cases where they were alike they showed distinct differences, and in a large number of cases they pointed upward to a greater or less extent.

Large fan-shaped transverse processes were rather common; when single they seemed to occur more frequently on the left side. They were much more common in the second type.

* Read before the Section on Orthopedic Surgery at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. O'Reilly, Archer: J. Orthop. Surg. 3: 171 (May) 1921.

COMPARISON OF ROENTGEN-RAY FINDINGS AND CONDITION FOUND AT NECROPSY IN MALE CADAVERS

No	Length of Transverse Process				Width of Transverse Process at Base				Tip of Transverse Process to Nearest Point Crest of Ilium, Cadaver		Distance Between Transverse Process and Ala				Width of Sacro-iliac				Spinous Process to Tip of Transverse Process				Spinous Process to Post-Inferior Spines of Ilium				Distance Between Post-Inferior Spines of Ilium	Color	Nationality	Age	Cause of Death
	Roentgenogram		Cadaver		Roentgenogram		Cadaver				Roentgenogram		Cadaver		Roentgenogram		Cadaver		Roentgenogram		Cadaver		Roentgenogram		Cadaver						
	Right Cm.	Left Cm.	Right Cm.	Left Cm.	Right Cm.	Left Cm.	Right Cm.	Left Cm.	Right Cm.	Left Cm.	Right Cm.	Left Cm.	Right Cm.	Left Cm.	Top Cm.	Bottom Cm.	Top Cm.	Bottom Cm.	Right Cm.	Left Cm.	Right Cm.	Left Cm.	Right Cm.	Left Cm.	Right Cm.	Left Cm.					
5	2.95	2.5	2.65	1.8	1.5	1.7	1.9	1.2	0.4	Free	1.0	1.3	...	...	9.2	10.6	10.2	10.8	6.6	5.5	7.9	6.5	5.5	6.2	4.4	3.9	7.4	W	Irish.....	75	Urinary retention
10	2.4	2.5	2.6	2.0	1.8	1.6	2.0	1.1	0.9	0.2	0.2	0.3	0.3	0.2	11.0	9.0	9.2	5.75	5.1	5.6	5.6	5.2	4.6	4.9	4.0	4.6	7.5	W	.....	..	Tuberculosis.
22	3.9	3.7	2.65	2.9	2.55	2.5	2.0	1.8	1.5	1.1	0.2	0	0	0	12.4	9.6	11.4	6.6	6.0	6.9	6.2	6.7	6.7	6.25	5.9	6.0	8.6	W	Canadian	68	Bronchitis, heart
40	3.3	3.3	2.35	2.65	2.2	2.2	2.2	1.8	1.7	1.5	0.15	0.1	0	0.25	11.7	9.7	10.6	8.9	5.6	7.5	7.2	6.8	5.5	5.8	6.6	6.8	8.9	W	.....	62	Bronchopneumonia
42	2.0	2.65	2.6	3.2	1.7	1.7	1.9	1.75	1.5	1.9	0.5	0.4	0.2	0.4	11.1	11.0	10.5	6.5	5.5	5.6	5.9	6.0	6.0	5.95	4.4	4.4	7.0	W	.....	60	Carcinoma
51	...	...	3.45	3.75	...	...	1.4	1.2	1.2	1.0	...	...	0.4	0.3	....	....	9.7	5.7	...	...	6.1	6.1	...	...	2.85	2.85	7.9	W	German...	57	Nephritis
30-5	2.6	3.4	3.5	3.6	1.7	1.2	1.6	1.6	1.6	1.6	0.2	0.75	0.6	0.4	10.35	10.6	9.6	6.5	5.0	6.1	6.2	6.2	6.3	6.0	4.4	4.3	9.3	W	.....	46	Epilepsy
0	...	...	2.6	3.4	...	...	1.4	1.6	1.9	1.7	...	...	0.8	0.9	....	....	11.1	6.9	...	...	6.2	6.35	...	...	5.2	5.3	9.9	W	German...	75	Senility
60	...	...	2.75	3.0	...	...	1.6	1.4	0.9	0.9	...	...	0.3	0.35	....	....	10.4	8.0	...	...	6.6	6.6	...	...	3.7	3.8	6.15	B	.....	79	Nephritis, senility
9	4.3	3.2	2.4	2.6	1.7	1.8	1.7	1.6	1.1	1.4	0.1	0	0	0.15	10.9	9.8	10.8	7.8	5.5	7.0	6.3	6.6	6.9	6.3	4.5	4.5	7.7	W	German...	46	Cirrhosis of liver
33	3.35	2.8	3.4	3.6	1.7	1.8	1.4	1.7	1.3	1.4	0	0	0	0.35	10.3	10.8	10.4	5.3	5.6	5.7	6.4	5.4	5.2	5.8	5.5	3.9	8.1	W	Swiss.....	60	Tuberculosis
50	2.05	2.1	1.8	2.35	1.15	1.55	1.2	1.7	0.9	0.1	0.2	0	0.1 Right.	0.1 Tip D.	8.2	9.2	8.6	5.9	4.9	5.1	6.0	6.05	4.9	5.3	4.5	4.35	6.5	W	.....	85	Senility
57	2.5	3.0	2.7	2.5	1.7	1.5	1.7	1.5	Rub above crest		0.7	0.7	0.3	0.7	11.2	10.2	10.4	7.7	5.7	6.0	6.9	6.5	...	7.2	5.6	4.7	8.4	W	.....	60	Tuberculosis
7	2.1	3.2	2.1	2.3	1.1	1.4	1.4	1.3	1.2	1.2	0.8	0.2	0.15	0.15	10.75	10.6	9.8	5.7	4.85	5.4	6.3	6.3	5.5	5.75	4.1	3.9	6.6	W	.....	..	Tuberculosis

Bifurcation of the first sacral spinous process is fairly frequent, 6 per cent. of the cases showing this defect.

Spondylolisthesis of varying degree is probably more common than usually supposed, also rotation and slipping between the lumbar and sacral articulations.

There are also rare cases that show congenital malformations.

In conclusion, there seems to be no one type that might be called normal. There are many variations in the lumbosacral region. Asymmetry is the predominating feature, and, at any rate from the roentgen ray, it is impossible to say which special combination of types is normal.

It seemed possible that many of these asymmetries and abnormalities might be due to the apparent flattening of the roentgenogram, and to some slight variation in position, even when supposedly taken in a standard position. The relation of the fifth transverse process to the ilium was also of interest.

In order to compare the actual conditions with the roentgen-ray findings, roentgenograms were made of all the cadavers to be dissected in the anatomic department of the Washington University Medical School last winter. When the dissection was completed, the pelves were studied with especial reference to the fifth lumbar vertebra—its relation to the first sacral, the shape and size of the transverse processes, and the relation of the processes to the alae and to the crest of the ilia.

Roentgenograms were made of twenty-eight cadavers. Of these, fourteen were studied in comparison with the dissected pelves. The other roentgenograms were not available because of the numerous extraneous lines, due to the hardening of the tissues, which rendered them very indistinct.

I have not attempted to make prints from the plates, as they would not reproduce clearly.

In none of the cadavers was there a large fifth lumbar transverse process, a comparatively common variation, nor was there any case of bifurcation of the first sacral spinous process. In fact, they were all fairly normal. There was no case of spondylolisthesis. In one there was a marked compression of the fifth lumbar on one side which did not show any bone destruction. This resulted in a scoliosis. In another there was a marked asymmetry of the sacrum.

In six of the roentgenograms there was an overlapping of the transverse process of the fifth lumbar on one or both sides, but in the dissection the distance between the tip of the process and the ilium varied from 0.7 to 1.6 cm. In one case (50) there was a space of 0.1 cm. between the tip of the process and the crest, with a smooth spot on the crest opposite the transverse process very suggestive of an articulation or an impingement. This did not show in the roentgenogram.

Arthritis to a greater or less extent was present in all cases. In some it was very marked. A striking feature was that the roentgenogram did not give an adequate idea of the extent of these changes. In several cases there was a heavy line running along the edge of the first sacral, which in the roentgenogram suggested the possibility of some displacement of the fifth lumbar, but in the dissection these were found to be due to a lipping, or to an arthritic deposit along the lower border of the fifth lumbar of the first sacral.

In one (Case 57) there were too rudimentary transverse processes running from the first sacral. They

were not distinct in the roentgenogram, but it was suggestive of some abnormality.

In the roentgenograms, asymmetry was not as marked as in my former series; in the cadaver the asymmetry was even less marked. This is shown in the accompanying table. The transverse processes showed definite asymmetry, especially in shape; they were rarely alike on the two sides. They were also closer to the alae in many cases than was indicated in the roentgenogram.

CONCLUSIONS

It is, of course, impossible to tell whether any of these subjects had definite back symptoms. Unfortunately, there were no cases which showed the apparent marked abnormalities seen almost daily in the Orthopedic Clinic, so that it has been impossible, with the present series, to throw any light on these. It would appear, however, that the actual amount of asymmetry is less than appears in the roentgenogram. Its appearance in the roentgenogram is due to some unnoticed variation in the position of the patient while the picture was being taken. Overlapping of the shadows of the fifth lumbar and the crest of the ilium does not indicate an impingement of one upon the other, nor could the presence of this condition be ruled out by the roentgenogram. In the majority of the cases the distance between the tip of the transverse process and the ilium is so great that it would seem almost impossible for them to come in contact, especially with the small amount of motion that takes place between the fifth lumbar and the first sacral. It does seem possible, however, that as a result of some strain there might be an injury to the ligaments running from the tip of the transverse process to the crest of the ilium, resulting in definite back symptoms. In a number of cases the lower border of the transverse process was very close to the ala of the sacrum, and in some they were practically in apposition. Here, again, it would seem possible that some untoward motion between the fifth lumbar and the first sacral might result in an irritation at this point, resulting in back symptoms.

There seems to be enough variation between the roentgenogram and the conditions actually found at dissection to warrant further work along this line.

3534 Washington Avenue.

ABSTRACT OF DISCUSSION

DR. JEFFERSON D. GRIFFITH, Kansas City, Mo.: This is not an absolutely unsettled question because we do not know much about it yet. Even the stereoscope does not seem to lead to any positive conclusions. But we do know that our patients are troubled by something. We cannot make it out. This part of the spinal column is the most difficult one to study. There are many injuries to it, and yet the patients seem to be able to get along. As the doctor said, the impingement of the transverse processes of the fifth lumbar vertebra on the pelvis gives such trouble that it has been subjected to operation. I relieve the pain by changing the heels of the shoes when there have been no results from operation. By changing the weight bearing center, one can do much for the relief of the symptoms.

DR. HORACE R. ALLEN, Indianapolis: What evolution has in store for us no one can accurately predict. We are somewhat familiar with the significance of our present development, although we are in an incomplete stage between quadripedism and ideal bipedism. I say ideal bipedism because we could suggest improvements that would eliminate many of the present "disadvantages of the upright position." In the lumbar curve is a secret involving the upright position. The spinous processes frequently do not project backward as far as the heavy muscles on each side of them. These powerful muscles are guy ropes that contribute their share in holding the spinal mast erect. When they contract they steady the lower part of the spine and also create more lumbar curve. To claim that transverse processes are actually elongating, in order to serve as more powerful levers by cooperating with sacral fastenings, would be prophesying a future anatomic animal. If Dr. O'Reilly, however, continues his study he may establish a fixed percentage in evolutionary change. Whether the pain experienced by sufferers from lumbosacral variations is accidental or incidental or evolutional is at present unsettled. When low back pains occur, we have to consider among other things the basic principles involved in balance. These begin at the feet as foundations for the lower extremities. I believe that no man is prepared to go on record with fixed rules for treatment of lumbosacral pains. In a general way, we believe that in some cases soft tissues are pinched between bones, and in other cases muscle exhaustion from constant strain to maintain balance or nerve compression or distortion by soft tissues produces aching pains. Our remedies are surgical and mechanical. Mechanical treatment is based on a comprehensive understanding of balance, not simply the balance regarded as standard for standard people, but also balance for abnormal creatures. In forming definite conclusions as to cause, one should always determine the different effects produced in standing on each and on both legs, and in sitting erect and bent to each side as well as forward and backward, and also have the patient lie down on face, sides and back. By following this routine, certain factors eliminated confirm possibilities suspected.

RÔLE OF DIET IN ETIOLOGY AND TREATMENT OF MIGRAINE AND OTHER TYPES OF HEADACHE *

THOMAS R. BROWN, M.D.
BALTIMORE

For many years I have been peculiarly interested in a group of cases of headache sometimes typical, sometimes atypical migraine in character, sometimes simple diffuse headaches without such obvious periodicity or tendency to hemicrania, sometimes almost a headache state, in which it has seemed to me either that the digestive symptoms are rather more than one would expect from a pure neurosis or that diet seems to have played a considerable rôle in the picture. Of course, in trying to unravel the cause of any given headache (incidently one of the most difficult problems I know of), before we dare even to consider digestive disorders or diet as a possible causal factor, we must determine or eliminate certain other definite factors which we know play a part in certain of these cases. Among these may be mentioned uncorrected eye strain, cerebral arteriosclerosis, disturbance of the nose and throat, various focal infections, nephritis, brain tumors and pelvic disorders, the last being of peculiar importance in connection with migraine, as there seems to be some relationship between such headaches and the menstrual function, as in many cases the headache either stops or becomes much ameliorated at the time of the menopause; in two of the most severe cases of typical migraine that I have ever seen, we brought about a complete cure by production of an artificial menopause with radium.

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

There still remains, however, a large group of cases in which none of the foregoing causes play a part, or, if present, are not sufficient to account for the picture —true migraine and atypical migraine, bilious or sick headache, chronic persistent headache, in which, whatever our ideas as to the underlying cause (some form of constitutional anomaly in which heredity obviously plays a part, vasomotor disturbances, toxic factors, reflex disturbances, absolute or relative stenosis of the foramen of Monroe, or a combination of these causes, all bringing about a general disturbance of the vegetative nervous system) it is difficult to divorce oneself from the idea that the condition of the gastro-intestinal tract and the character of the diet play some part in the explosive phenomena, if only as a secondary or contributory factor. In fact, in every case of headache, even admitting congenital defect or angioneurosis or other fundamental factor, there always remains the problem to be solved, What is the spark that produces the attack? Analysis of certain of these cases shows that nervous strain, the instability of the menstrual period, emotional excitement, and fatigue and various psychic phenomena unquestionably are contributory factors, but in many cases it is quite impossible, even with the most thorough analysis, both physical and psychic, to explain the headache on such a basis alone, and we must look for other provocative factors.

I believe that in a number of such cases the diet plays a very large rôle, and it is this group that I wish to discuss here. As I see it, such cases fall into four distinct subgroups: (1) headaches associated with excessive intake of carbohydrate—that is, excessive as far as the individual ability of the organism is concerned, often not at all excessive as regards the average individual, this obviously suggesting some congenital or acquired defect in carbohydrate metabolism; (2) those in which animal protein food plays the important rôle, these two subgroups making up the great bulk of our cases; (3) those that represent true intestinal toxemias or bacteremias, and (4) those of gouty origin.

HEADACHES ASSOCIATED WITH EXCESSIVE INTAKE OF CARBOHYDRATES

Notwithstanding the contrary view held by many clinicians and most patients, our experience is that in the largest group of cases it is excessive intake of carbohydrate food, or, to put it better, an intake of carbohydrate food in excess of the body's ability to consume it thoroughly, that plays the largest rôle in those headaches associated with dietetic error. In certain cases the headaches are typical migraine, many are atypical, many are bilious headaches (so common in the South, and in which the patients have found that purgation and starvation often bring rapid relief of symptoms) and some are cases of almost constant or very frequent headaches, often diffuse, and not hemicranial.

In many of these cases the patient has noted that the headache follows excessive intake of carbohydrate food, usually sugar in some form, and some have noted that if this is followed immediately by a large amount of alkalis, the headache can be aborted. In other cases the patient has had no suspicion of the rôle that diet plays. I have followed a great number of such cases, some of them many years, and am convinced that real cure can be obtained in a certain number of cases and very marked amelioration in others by persistence in the proper dietetic therapy. These are the type of cases that Dr. Francis Hare [1] of England has written about and in which Dr. Robert Hutchison and Dr. Kessel have been so interested.

As regards presumptive diagnosis, in certain cases it is suggested by the patient, in other cases it must be by exclusion of other causes, but in either case the final criterion must be the dietetic test, that is, the control of the symptoms to a greater or less extent by the appropriate diet. Very careful study of the stool and urine shows nothing abnormal. The stool shows no deficiency in starch or fat digestion; the urine shows the presence of neither sugar nor acetone bodies, and the general physical examination of the digestive tract throws little or no light on the picture. We have not studied the blood sugar in these cases, but hope to do so subsequently. Many of these patients show a distinct increase in the size of the liver during the attack, as shown by careful percussion and palpation possibly a simple hyperemia, possibly a biliary stasis as well; but this swelling disappears shortly after the subsidence of the attack. There are no definite signs of jaundice, though the patient often complains of yellowness of the complexion during the attack, and some have noted that the stool became somewhat lighter in color, though as a rule not acholic; in a few cases, acholic stools have been noted.

Our treatment has been practically that suggested by Francis Hare, and carried out so successfully by Robert Hutchison—two or three weeks of a diet consisting largely of proteins, fats, greens and acid fruits, with absolutely no sugar or starch except that found in the foregoing foods, in other words, practically an antidiabetic diet, trying to keep the weight constant by giving considerable amounts of butter, cream and olive oil, and later adding a very small amount of carbohydrate, one or two slices of bread or toast, one or two potatoes or a small plate of oatmeal daily, and keeping the patient on this diet or a diet even more restricted or somewhat less restricted in starches, according to its effect, for a long period of time, sometimes indefinitely. I have, for instance, one patient, a terrible sufferer from true migraine for many years, who was put on this diet ten years ago, whose starch intake we have never been able to increase beyond two slices of bread and one potato daily, and who has been kept practically headache-free for ten years, with, as far as one can tell, absolutely normal health.

I have a large number of other cases in which such a carbohydrate-free diet for a shorter or a longer period of time followed by a permanent carbohydrate-low diet has been equally successful; in each case, of course, our attempt being to determine the maximum intake of starch not productive of headache. I have felt that in this group of cases as well as in our second group it would be very interesting to try the effect of the Meltzer-Lyon method of gallbladder drainage at short intervals, as, for example, once weekly, on the theory that this might promote better hepatic function and the headaches be kept in abeyance on a larger intake of carbohydrate food than would otherwise be possible.

1. Hare, Francis: Food Factor in Disease, London, Longmans, 1905, and subsequent publications.

Hare ascribes the effect of the carbohydrate in these cases to an accumulation in the blood of carbonaceous material, calling it hyperpyrexia, and he believes that other periodic disorders, notably asthma, may be due to a similar cause. Whether one accepts or rejects this theory of the condition, I am quite confident that there is a group of cases in which carbohydrate intake plays a large rôle, either excessive intake of starches or sugars, or a lessened ability of the organs of the body, probably in the main the liver, to care properly for such foods, or a combination of both factors, and that especially in those so predisposed, one of the symptoms may be headache, often of the migraine type. In a certain group of cases I believe the headache, more often atypical migraine or chronic headache, may have such a condition as the primary cause; in other cases, probably in the majority, it may simply be one of the contributory factors; but in either case dietetic therapy is unquestionably efficient, in some cases apparently with an increased tolerance after persistence in such treatment.

HEADACHE ASSOCIATED WITH INTAKE OF ANIMAL PROTEIN FOOD

In our experience, headaches associated with the intake of animal protein food are next in point of frequency to the group just discussed. There is a very large amount of clinical evidence in favor of this theory; in many cases the patients have noted that, after an excess of animal protein food, headache is likely to occur. In certain cases of migraine, patients have obtained great relief from a vegetarian diet, while in other cases certain special proteins seem to be peculiarly implicated, such as eggs or milk or a combination of the two, in one of my cases ham. In these cases, however, although this reaction to one special food is suggestive of the attack being a form of anaphylaxis, in my experience the skin reactions have generally been absolutely negative, although my feeling has always been that such skin reactions as a test of protein sensitiveness are, as a rule, relatively of little value except in that group of cases associated with definite skin lesions, such as eczema, urticaria or erythema. In many of these cases the patients themselves have recognized the relationship between food and headache and have shaped their dietary accordingly. Other causes undoubtedly play a part—nervous influences, fatigue, climate, etc. In one of my cases, for instance, a typical migraine, while the headaches are definitely related to protein intake and can be relieved by strict vegetarian diet, they are more severe and more frequent, when the diet is not absolutely strict, in the tropics and when the patient is tired, less frequent and less severe in a cooler climate and when the patient is not fatigued or worried; but in either case they are practically absent as long as the patient refrains from animal protein food. Here, too, in many of the cases a distinct swelling of the liver is to be made out during the headache, and in one case the giving of animal protein food for twenty-four hours would definitely bring this about.

Is there any means of diagnosing this type of headache apart from the clinical observations, the effect of animal proteins in producing the attacks, and the relief obtained by a vegetarian diet? The recent work of Widal and his co-workers is very interesting in this connection, as they believe that certain of these cases represent a colloidoclasic shock due to heterogenous proteins reaching the general circulation, this in turn being due to a lessened or absent proteopexic function of the liver, while they believe that in their hemoclasic crisis they have a definite test of such a deficiency. The test is simply the introduction into the fasting stomach of a certain amount of animal protein food, milk being used as a rule because of its simplicity. This will bring about a leukopenia and inversion of the leukocyte formula and a drop in systolic pressure, as well as certain other more complicated and less easily studied phenomena. We have tried this in between twenty-five and thirty cases and have found it of real value in certain of these cases associated with disturbance in protein absorption and fixation; but the test is by no means infallible in this group of cases, being negative in certain instances notwithstanding there is no question about the fact that animal protein food was productive of marked symptoms. One would feel, therefore, in the first place that this test, if positive, is of value; but if negative it does not exclude the possibility of proteins playing a significant rôle; while it also suggests, in the second place, that possibly in certain cases abnormal products of protein metabolism, in others specific sensitiveness to animal proteins, may play some part.

In the treatment of this group of cases, in our experience the most satisfactory results have been obtained by the complete removal of all animal protein foods from the dietary for a certain length of time, then the very cautious addition of small amounts of various proteins—in the choice of which we are often guided by the patient's own observations. In some cases of intense migraine we have been obliged to keep the patient permanently on a purely vegetarian diet, though this is rare; and in some cases moderate reduction of the protein—sometimes practically approximating the Chittenden figures—seems to be able to be borne without production of symptoms. As in all cases of headache, it is needless to say that it is wise to bring about a normal weight on the part of the patient, to eradicate as far as possible any contributory factor, such as anemia, pelvic disorders, mouth infections, and nose and throat trouble, to reduce nervous strain and fatigue as far as possible, and to do everything to promote normal digestion and elimination, for certainly in many cases constipation aggravates the symptoms, purgation cures the attack, and normal bowel movements diminish the liability to such attacks. Recently many of the French observers have suggested the desensitizing of the patient in this group of cases by the administration of small desensitizing doses, in some giving 0.5 gm. of peptone an hour before meals, in others 1 c.c. of horse serum or crotalin subcutaneously or intravenously at weekly intervals at first, and then at longer intervals in that group of cases with a positive hemoclasic crisis by the test described above. In those rare cases in which the migraine seems to represent true anaphylaxis, desensitization with the specific protein is, of course, employed. We have employed the first method, that is, peptone by mouth before meals, and in certain cases the results have been sufficiently encouraging to warrant our continuing the use of this method, although in our experience not sufficiently encouraging

to make us give up the elimination or limitation of animal protein foods for a considerable period of time in addition.

CASES REPRESENTING TRUE INTESTINAL TOXEMIA OR BACTEREMIA

While, in a sense, possibly related to the preceding group, true intestinal toxemias or bacteremias have certain special characteristics that should make us consider them as a group apart. In our experience there are very few cases in which we can definitely prove that the headache is of such origin, although we realize that a great many people claim that such is the case in many cases we think, however, on quite insufficient evidence. While the effect of purgation or of bowel irrigation makes one feel that there is the possibility of this factor in many cases, we have in fact seen only two cases in which we feel that beyond reasonable doubt this was the cause of the headache; in both cases the headaches were agonizing, often lasting at maximum intensity four and five days with a loss of from 5 to 10 pounds in weight during the attack, associated with profound systemic symptoms—rise of temperature, nausea and vomiting, intractable constipation, transitory glycosuria, and extremely alkaline stool immediately preceding and following the attack, and in one case the isolation of three anaerobes from the stool after the attack and from the intestine at the time of operation. Neither case could be cured dietetically or by purgation or irrigation. One was permanently cured by appendicostomy and subsequent irrigation for six months, and in the second, real relief was not obtained until after a partial colostomy, with the removal of the atonic, thinned, dilated, distinctly pathologic intestine.

These cases are, of course, of peculiar interest because they suggest very strongly that abnormal decomposition products of protein digestion—possibly related to histamin—may be a factor in disease, these toxins as a rule affecting especially the sympathetic and vasomotor systems; and while in most cases beyond definite proof, we cannot help but feel that they must play a certain rôle in cases of very marked intestinal stasis.

CASES OF GOUTY ORIGIN

It has been suggested by many that migraine might, in certain cases, represent an abnormality in purin metabolism; in other words, it might be regarded as a manifestation of metabolic error of the gouty type. We have recently been interested in certain cases of myalgia or arthritis in which infection seemed to play no rôle, or in which, after the removal of suspected foci, the symptoms persisted. In certain of these cases we have been studying the uric acid output first on a purin-free diet, and then after the addition of a certain amount of purin-rich food (400 gm. of beefsteak daily). We believe that in this relatively simple test we have the means of diagnosing this metabolic abnormality by a significant diminution in endogenous uric acid output, and the lack or diminution of response to exogenous purin. In one of our cases, severe headache of the migraine type was one of the symptoms, and shortly after the patient had been put on a strict purin-free diet the headache as well as the muscle and joint symptoms entirely disappeared. We simply mention this case here because here again we have a group of cases of headache, probably an extremely small group, in which it seems that a definite abnormality in metabolism is one of the causes, and in which a purin-free diet seems to give much relief.

Perhaps of somewhat similar nature is a group of cases of neuritis, neuralgia and myalgia, including certain cases of headache of the severe neuralgic type associated with an excessive urinary acidity which I described a number of years ago, which on rather insufficient evidence, it is true, I regarded as probably due to certain errors of metabolism associated with a marked increase in acid output in the urine, and which, in my experience, were very materially helped by the administration of alkalis in sufficient amount to neutralize the excess of acid in the urine.

CONCLUSION

I have attempted to sketch very briefly in this article the arguments in favor of the rôle played by diet in the production of migraine and other forms of headache, offering, it is true, arguments based mainly on clinical data, although supported in certain cases by laboratory findings. I feel from the study of my cases that in certain cases of migraine and other forms of headache, whatever the primary cause, diet plays some part in producing the symptoms of which the patient complains, and that by modifying the diet cure may be obtained in a few cases, and a very considerable amelioration of symptoms in many cases. In my series of fifty or more cases, carbohydrates seemed to have played the predominant rôle in the largest number of cases; animal-protein food in almost as many; special foods, notably sugar or eggs in a very few cases, while in an occasional case the headache might be regarded as a definite expression of intestinal toxemia or bacteremia or of an error in purin metabolism. That some disturbance in liver function plays a part in these headaches is suggested by the fact that there is in some cases a temporary enlargement of the liver during and after the acute symptoms. While it is not always possible to determine to which special form of dietetic error the individual headache may be ascribed, nevertheless in many cases a very careful clinical analysis, supported by certain laboratory tests, offers us a clue as to the materia peccans, carbohydrate, animal-protein, or purin-rich food as the case may be. In cases in which it is absolutely impossible from the clinical evidence to incriminate any special food or foods, it is wise to place the patient first on a carbohydrate-free diet for a considerable period of time, and if this proves unsuccessful, then on an animal-protein-free diet. In certain cases such treatment will bring about a very marked improvement in symptoms, in a very few apparent clinical cure, although, of course, in a large number of cases no effect whatsoever. Finally, in this group of cases the treatment of which is peculiarly unsatisfactory, by many regarded as almost hopeless, this point of view is not justifiable, unless one realizes that in certain of these cases diet unquestionably plays a rôle, and that a proper recognition of this fact should manifest itself in the appropriate dietetic therapy.

ABSTRACT OF DISCUSSION

DR. W. A. BASTEDO, New York: Dr. Brown's paper has enlightened me a great deal because he found so many headaches due to carbohydrates and fewer to protein in the food. My own belief has been that the carbohydrate headache was

comparatively rare and the protein headache comparatively common. In looking over these statistics I find that Dr. Brown has not said anything about fats. He did mention acidosis. We do have acidosis headaches which must come from fats either in the food or in the patient's body. Yet, I have seen many acidosis headaches relieved by alkalis, but seldom, if ever, by the removal of fat from the food. In regard to proteins, I do not agree with Dr. Brown at all that headaches from decomposition products formed in the intestine are rare. I believe they are very common. I am one of those who believe that intestinal bacteria may produce toxic substances which cause headache. When laboratory workers have taken these poisons they have had headaches. When a patient has a headache what does he do before he gets to us? He uses a cathartic and takes nothing but tea and toast or some such simple food or no food at all, and often the headache disappears. It is for the persistent headache that the patient goes to the doctor. We have found that different foods produce headache in different individuals. For instance, we have found patients who had headache from chicken, others from beef, lamb, mutton or fish. Chicken and eggs, in our experience, have been the most productive of protein headaches. Again, we find that in some persons dried peas or beans, as in black bean or white bean soup, will produce headache while green peas or beans will not. We do not know the reason for these things, but to me these headaches seem to depend on toxic products of protein.

DR. THOMAS R. BROWN, Baltimore: In this paper I did not mention that certain foods seemed to produce headaches, and in my experience many headaches were caused by the protein foods, although it was very difficult to ascertain that except by dietetic experimental methods as I have had no help from the skin sensitization test. As to fat, I was unable to definitely incriminate fats in any cases, though it is certainly possible that an acidosis may have played some part, although this did not show as far as the urinary examination was concerned. Regarding the question of animal protein, I think Dr. Bastedo did not hear my last report. I said "while the carbohydrates seem to play the larger rôle, the animal proteins play almost as large a one." As to toxemia, I feel it is probable that the decomposition of protein food does play a rôle. The object of the paper was to call attention to that discouraged and almost hopeless group of patient that go from doctor to doctor and are told that nothing can be done for them, and yet in some carbohydrate or protein foods play some part in producing the headache. In the second place, there are certain tests that are rather suggestive, notably the Widal hemoclasic test. The paper was based on a number of cases over a number of years, and was presented because I felt that the food factor has been neglected in many of these cases and I believe that by proper selection of food a certain proportion of cases of headache can be definitely relieved.

Occupational Diseases in Germany.—The annual report of the factory and mine inspection system in Germany for 1919 has just been published. Among the facts it brings out are that although the introduction of the eight hour day may have been a factor in the general improvement in health conditions among the workers, it did not bring the hoped for increased output. Instances are recorded of industrial poisoning with chlorin, arsenic and nitrous gases in addition to lead and mercury. Cases of industrial injury were also specified from a long list of substances, including cyanic acid, nitrited hydrocarbons and aromatic nitro and amido compounds. In one establishment there was a case of melanosis from schmieroel. A number of instances were also recorded of dermatoses from a mixture of this oil and paraffin from coal tar. They were especially numerous in the manufacture of briquettes. Three instances of severe eczema were ascribed to inhalation of paraffin steam; paper pulp had to be dipped in melted paraffin. Anthrax has much declined; only seven cases were known. In one chemical works in the Pfalz district, there were seven instances of bladder disease from industrial poisoning, and six of them ran a malignant course. The chemicals involved here included anilin blue, diamin, eosin, rhodamin, fuchsin and alizarin.

VISCEROPTOSIS: NORMAL INCIDENCE

A PRELIMINARY REPORT *

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Interest in the general subject of visceroptosis is not new, as witness the paintings of Botticelli. Later, among others, Cranach and Memling favored representing the visceroptotic type in art as contrasted, for example, with the florid type portrayed by Rubens.

Medical interest in visceroptosis dates at least as far back as the time of De Haen,[1] who, in 1768 and after, published wood cuts showing abnormal positions of the viscera. Recent medical interest, of course, dates from the time of Glenard [2] and Stiller.[3] Since 1900, there has been a wave of literature on visceroptosis which was so large that Burckhardt,[4] writing in 1912, had no difficulty in collecting a bibliography of nearly 600 titles. Interest in the subject continued to grow, reaching a maximum about 1915-1916; but since then it has been steadily declining, as judged by the literature.

POSITION OF THE STOMACH

Stomach	Normals Per Cent.	Levy and Kantor Per Cent.	Swaim Per Cent.
Normal	47	36	14
Low	47	18	17
Low plus	6	46	68

An examination of this mass of literature, however, reveals but few titles of a substantial scientific nature. In fact, with the exception of a few papers on specialized areas, such as the study by Smith [5] of the position of the cecum in 1,050 infants, I have found but one article adequately supported by sufficient data. This is by Albu,[6] written in 1909, reporting the result of twelve years of investigation of the subject from a clinical point of view in a large series of hospital patients. His figures were based on a study of 1,870 male and 1,620 female cases, and are the most reliable available from the clinical point of view.

A reasonable search has not revealed any study, at all comprehensive, of the subject of visceroptosis from the postmortem room with regard to sex and age. The data herewith presented will, it is hoped, to some extent supply this deficiency in the literature. It is believed that they will also serve as a control or normal by which figures reported in such selected material as comes to the roentgenologist may be judged with reference to deviation from a normal based on unselected material.

An indication of the value of having such a normal available may be given by referring to two valuable roentgen studies on the position of the stomach by Levy and Kantor,[7] and by Swaim.[8] By themselves, these reports are of less value without a basis of com-

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

* The original data for this article were obtained in 1912-1914 through the courtesy of Professors Pick and von Hansemann of Berlin, Professor Fraenkel of Hamburg, and the students then working in their pathologic institutes.

1. De Haen: Rationis Medendi, Viennae Austriae, 1768, 1ars III.
2. Glenard: De l'entéroptose, Paris, 1885.
3. Stiller: Arch. f. Verdauungskr. 2: 285, 1896.
4. Burckhardt: Ergebn. d. Chir. u. Orthop. 4: 285, 1912.
5. Smith: Anat. Rec. 5: 549, 1911.
6. Albu: Berl. klin. Wchnschr. 35: 289, 1909.
7. Levy and Kantor Boston M. & S. J. 174: 534, 1916.
8. Swaim: Clifton M. Bull., April, 1914.

parison. Compared with a normal, it is possible at once to judge the degree of excess of gastroptosis represented by their figures. This may be shown in the accompanying table, indicating the position of the stomach. Levy and Kantor's figures are based on 899 cases, and Swaim's figures are based on 397 cases. My own figures are based on a total of 290 postmortem cases of all ages and both sexes.

A glance at the table is sufficient to indicate that Swaim was reporting on material of a much more advanced character, from the point of view of gastroptosis, than was the case with Levy and Kantor.

There are in the literature many generalized statements, nearly all unsupported by facts, as that there is a necessary connection between ptosis of the right kidney and ptosis of the hepatic flexure, ascending colon, and cecum. Williams,[9] among others, makes this statement, referring to it as right-sided ptosis, and then in the usual manner refers to the fact that ptosis of the left kidney occurs only when the splenic flexure, the most firmly supported point of the intestinal tract, gives way.

My figures do not tend to corroborate such statements. In fact, if there is any relation between the kidneys and the flexures of the colon, it seems that the relation is an inverse one since ptosis of the hepatic and splenic flexures tends to decrease with age in both sexes, whereas ptosis of both kidneys very definitely tends to increase with increasing age in both sexes.

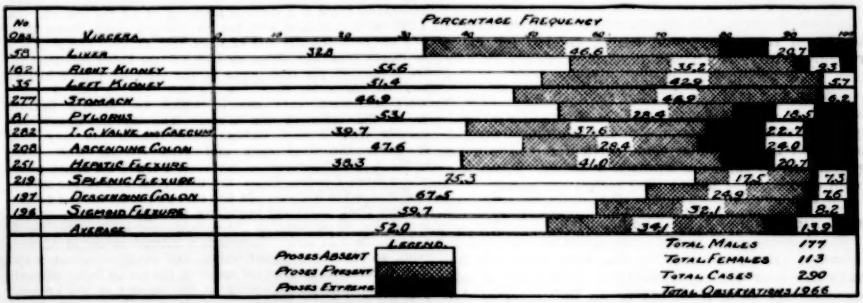
The accompanying chart represents in condensed form what may be considered a series of normals. It is based on a total of 1,966 observations on 290 unselected postmortem sections of all ages and both sexes, and shows graphically the percentage frequency with which one may expect to find the viscera in normal or ptotic position in unselected material. Obviously, the position of the viscera differs with physical type, but it is at least important to have some normal as a point of departure instead of building a complete house of cards on no solid foundation. Until corrected by subsequent investigators, there is at least offered some kind of a normal instead of none, by these figures.

Space limitations prevent the utilization, in this brief paper, of additional graphic tables which are available to show the occurrence of visceroptosis in the various organs in both sexes and at the different age periods. The number of cases in each sex, both below and above 40 years of age, is sufficient to form a reasonably reliable basis of comparison. In addition, the fetal and senile age groups were used, although the total number of cases included in each of these groups is small, in order to provide additional suggestion as to the effect of age on visceroptosis.

A review of these tables gives the following results, in brief:

Some degree of visceroptosis was present in 48 per cent. of all cases examined, about 8 per cent. more than half of the males, and 8 per cent. less than half of the females being normal.

An examination of the male cases shows that one or more viscera presented an extreme degree of ptosis in 10.1 per cent. of the fetal group, in 12.4 per cent. of the group below 40 years of age, in 8.2 per cent of the group above 40 years of age, and in 10.4 per cent. of the senile group. There is therefore no good evidence that, in the material examined, visceroptosis as a whole is a progressive condition in the male.



Percentage frequency of visceroptosis in both sexes at all ages.

An examination of the female cases shows that in 17.1 per cent. of the fetal group, in 20 per cent. of the group below 40 years of age, in 19.4 per cent. of the group above 40 years of age, and in 23.6 per cent. of the senile group, visceroptosis was extreme. There is therefore some slight evidence that visceroptosis as a whole may be considered a progressive condition in the female, but the evidence available is far from conclusive.

The evidence available is, however, reasonably conclusive in regard to the effect of age on the individual viscera. Thus, in both sexes, there is no evidence of visceroptosis in the fetus with regard to the liver, right or left kidney, stomach or pylorus. On the other hand, the ileocecal valve, the ascending colon, the hepatic flexure, the splenic flexure, the descending colon, and the sigmoid flexure all show evidence of low or loose attachments in the fetus of both sexes, the ptotic condition being most marked in the male at the ascending colon with 25.0 per cent. of extreme loose attachment already present, and in the female at the hepatic flexure with 53.3 per cent. of extreme ptosis already present.

Throughout life, the percentage of extreme variations from the normal is with few exceptions greater

9. Williams: Boston M. & S. J. 172: 13, 1915.

at every point examined in the female than in the male. The excess is most marked in the female at the region of the ileocecal valve; thus, in the adult, extreme ptosis is present in the male below 40 years of age in 13.6 per cent., and in the male above 40 years of age in 10.9 per cent. of the cases examined. This contrasts with a percentage frequency of extreme ptosis in the region of the ileocecal valve in the female below 40 years of age of 34.5 per cent., and in the female above 40 years of age of 44.4 per cent. In the female, this discrepancy continues to increase still further with inceasing age, so that in the senile group ptosis at the ileocecal valve is extreme in 50 per cent. of the cases examined, as against 17.6 per cent. of the male senile cases examined.

A paper such as the present one would be of only theoretical importance unless it had some clinical application. It would seem that at the present time clinicians run to extremes in a consideration of visceroptosis. On the one hand, in the large centers, operative procedures are admittedly applicable to only 10 per cent. or so of the worst cases, and it is now the fashion to say that from a medical point of view visceroptosis is of no importance as long as the organs function properly. On the other hand, a young woman of 30, in reasonably good health, entered my office recently with some newly purchased corsets on her arm. She was in great mental distress. She said her physician had told her that her stomach was 3 inches low. Her corsets were supposed to be of excellent quality, but she was afraid that the saleswoman might be correct in saying that these particular corsets were guaranteed to raise the stomach 5 inches. From her point of view this would be 2 inches too much.

There would appear, then, to be room for a little more orientation as to the true importance of visceroptosis. Visceroptosis is not necessarily an irreparable calamity. It is, however, as has been well said by many previous writers, an evidence of deficient development. As such, it should be an indication to the clinician that he is dealing with an organism that is somewhat unstable. The individual patient must therefore be attacked from every possible direction, not only physically but mentally. Only thus can be gained, and even then often with difficulty, the best possible results in the way of an ultimate approach toward normal health and full working capacity.

SUMMARY

1. Visceroptosis is, in general, not progressive with age. This is due to the fact that, although the percentage of ptosis of certain viscera increases with age, this percentage increase is offset by a decreasing frequency with age in respect to other viscera.

2. Visceroptosis affecting one or more organs was present to some extent in 48 per cent. of all cases examined, it being extreme in 10.2 per cent. of the males and 19.7 per cent of the females.

3. Visceroptosis affecting the liver, right and left kidney, stomach and pylorus, is acquired.

4. Visceroptosis affecting the large intestine is in both sexes largely congenital or developmental. The percentage frequency of ptosis of certain portions of the large intestine does, however, further increase with age in both sexes. The greatest discrepancy between the male and female in regard to the percentage frequency of coloptosis in the adult occurs at the ileocecal valve. Thus, this portion of the colon shows an extreme degree of ptosis in 12.1 per cent. of the males of all ages; this contrasts with an extreme degree of ptosis at the ileocecal valve in 39.4 per cent. of the females of all ages.

5. No normal standard of frequency of visceroptosis, based on unselected material, exists.

In the absence of such a normal standard, proper evaluation of the degree of deviation reported in any selected roentgenologic or other series of cases is impossible.

A standard of frequency of visceroptosis which may be considered adequate until corrected by future investigators is made available in tabular form in the present article.

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ABSTRACT OF DISCUSSION

DR. L. B. MORRISON, Boston: My study of visceroptosis has been wholly through the fluoroscopic screen antemortem. A number of factors cause visceroptosis. There is the large, fleshy individual and the tall, thin individual. The fleshy individual has the high abdomen and the short chest and high viscera. In the slender individual, compared with other standards, there is a definite lowering of all the viscera. In 1,500 cases examined with the fluoroscopic screen there were 57.7 per cent. females and 42.3 per cent. males. The stomach in 18 per cent. was about an inch or two above the crest of the ilium; 45 per cent. were at the crest or 1 inch below, and 38 per cent. were low in the true pelvis. I consider a normal case one in which the hepatic flexure is at the crest of the ilium. The splenic flexure is usually from 4 to 6 inches above, though you may find it under the diaphragm, and even passing well back under it. In 30 per cent. of my cases I found the cecum anywhere from 2 inches below the iliac crest and in the pelvis and over to the left side. In one case you could lift the cecum up and float it around anywhere through the abdomen. I found that 40 per cent. of the patients had incompetent cecal valves. In this series there was a dilated cecum in 32 per cent., so that incompetent valves run pretty constant with dilated cecums. Dr. Bryant spoke of the cecum being dilated to almost any size according to the amount of the enema. I do not find that it dilates in proportion to the amount given. One cause of ptosis is the loss of muscle tone and another the amount of fat in the abdomen. I saw a patient two years ago who on treatment has gained 35 pounds in weight. Her stomach was 4 inches below the crest of the ilium; now it is at the crest.

DR. J. L. KANTOR, New York: Incidence depends on the location of the place from which a man gets his material. On the other hand, a man doing a general practice is likely to be surprised at the large number of asthenics he encounters. In the army, previous to the general draft, it was probably very rare to get a man with marked visceroptosis; but as soon as the draft law went into effect, we were immediately confronted with what Dr. Bryant has so well termed the problem of the "congenital visceroptotic invalid." It was the failure to recognize the essential character of this condition that led to trouble in trying to promulgate a relatively short course of development for deficient individuals of this type. Also, it was not realized soon enough that in extreme forms of this condition it is quite impossible for the men to do the regular work of the soldier. Such individuals should have been discharged quickly to avoid needless expense on the part of the government.

DR. FRANK SMITHIES, Chicago: This paper, instead of being titled the "normal incidence of visceroptosis," should be called the "incidence of normal visceroptosis." We see many cases of visceroptosis without symptoms. This aspect has significance, and I think this should be taken into consideration in treatment. In the cases of visceroptosis with symptoms, very frequently the symptoms are due to conditions entirely unrelated to the position of the viscera, e. g., as abnormal material in the intestine, affections of the intestinal wall, and infected appendix or gallbladder, or possibly both.

In such circumstances, treatment directed toward the visceroptosis instead of being directed toward the primary cause is without avail.

DR. JOHN BRYANT, Boston: My principal object in reading this paper was to try to provide at least some standard of normals, with regard to visceroptosis. I realize well enough the relation of visceroptosis to body type, and wrote several articles on this subject some years ago. The original material for this paper was obtained in 1912-1914, but in the interval no standard of normals has become available in the literature. I therefore desired to provide some sort of standard where there was none.

GLANDULAR FEVER *

P. F. MORSE, M.D
DETROIT

Some diseases seem to be peculiar in their tendency to recur after apparent intervals of quiescence. These periods may be so protracted that the medical profession forgets the existence of the disease, and on recurrence of the infection cases are reported as a new disease.

We have had a recent example in the recurrence of epidemic encephalitis, and at present another is before us in a disease first described as a clinical entity by Pfeiffer, in 1889, and given the name glandular fever. Until ten or twelve years ago, it was fairly well known, but it seems lately to have become so infrequent as commonly to escape diagnosis.

A widespread but mild recrudescence is taking place and the affection is again quite prevalent. Many cases of glandular fever are running their course unrecognized or are being given new names under the impression that they are unusual and new diseases. Thus, Bloedorn and Houghton [1] have reported undoubted cases of glandular fever under the name of "acute benign lymphoblastosis," and Sprunt and Evans [2] also have called attention to the disease under the title "infectious mononucleosis." A recent article recognizing that glandular fever is again with us, and describing the clinical features in a systematic way, is that of Tidy and Morley.[3] An editorial in the *British Medical Journal* [4] also calls attention to the foregoing facts.

A fairly typical case, reported from Dr. McKean's service at Harper Hospital, sets forth the more common features of the affection:

CASE 1.—*History.*—Mr. M., aged 27, a medical student, entered the hospital, May 11, 1921, complaining of sore throat, pain in the left hypochondrium, and weakness. The family and past history was of no significance. May 1, he noticed a soreness in the back of the neck and an occasional "jerking or bobbing of his head." One day later his throat was sore and reddened, felt raw and was covered with exudate. He also felt nauseated for a time. The temperature, May 2, ranged from 97 to 100 F., and he perspired freely at night. There was considerable mucus in his throat for several days. Until May 8, his temperature was subnormal in the morning, and rose to 100 or 101 F. in the afternoon. The heart rate was accelerated twenty-five beats a minute. The temperature, after May 8, returned to normal, but the fever left him feeling tired and weak, and with pain and tenderness in the left hypochondrium.

Physical Examination.—This was made, May 11, 1921. Only positive findings are reported. The tongue was deeply furrowed and slightly coated; the pharynx was congested, and the pillars were slightly reddened. Examination of the neck revealed that the anterior and posterior cervical lymph nodes were enlarged and easily palpable. The supraclavicular, infraclavicular and inguinal lymph nodes were enlarged and somewhat tender. The spleen was easily felt below the left costal margin. It was tender, and palpation of it increased the upper abdominal discomfort. The temperature remained normal throughout a five days' stay in the hospital.

Microscopic Examination.—Blood examination on the day following admission, revealed a negative Wassermann reaction; red blood cells, 5,410,000; hemoglobin, 70 per cent.; white blood cells, 17,500; differential: polymorphonuclears, 18 per cent.; small lymphocytes, 77 per cent.; large mononuclears, 4 per cent., and eosinophils, 1 per cent.

Two days later the white cells numbered 13,600, with 75 per cent. lymphocytes. The hemoglobin was 60 per cent. The day before discharge the white cells numbered 10,800, with 62 per cent. lymphocytes. Two weeks later the white cells numbered 5,800, and the lymphocytes 43 per cent.

The urine was negative the three times it was examined.

Another case, from the service of Dr. A. F. Jennings, presented the following points of interest:

CASE 2.—Mr. A., a clerk, April 5, 1921, felt ill and "feverish." The glands under the angle of the jaw were enlarged. He consulted Dr. Jennings, April 9. The nose and throat were reddened and moderately sore. The cervical glands were enlarged on the left side. The temperature was 99.6 F.; pulse, 100; blood pressure, 120 systolic and 80 diastolic. The spleen was enlarged and tender.

The blood count, April 11, revealed 11,150 white blood cells per cubic millimeter: polymorphonuclears, 39 per cent.; mononuclears, 61 per cent. April 12, the total white blood cells numbered 15,100, with 79 per cent. mononuclears. April 25, the white cells numbered 9,700: polymorphonuclears, 25 per cent.; small mononuclears, 68 per cent.; large mononuclears, 7 per cent. The blood culture, April 14, was negative.

The urine was negative on three occasions, except for a moderately strong urobilinogen test and a trace of bile, April 12. No cutaneous evidence of bile retention was noted. The characteristic mononuclear cell present in both cases was of the bilobed "Riedel" type. The blood count in the second case has now returned to normal.

Since a systematic and exhaustive account of the disease has recently been published by Tidy and Morley,[3] only a short account of the more salient features will be considered here.

SALIENT FEATURES

The affection is supposed to have an incubation period of from 5 to 10 days. The onset is sudden, usually with sore throat and a feeling of stiffness in the neck, and often with upper abdominal pain or discomfort in the left hypochrondrium. Nausea and vomiting are common at the onset.

The temperature is often normal in the morning and is seldom above 102 F. in the afternoon. Within a week the temperature has usually returned to normal.

Physical examination reveals the swollen lymph nodes as the outstanding feature. Usually the cervical chain is most involved, but the supraclavicular and infraclavicular, axillary and inguinal nodes are almost always palpable. In the first case here reported, the epitrochlears were also enlarged. The spleen is enlarged and tender in about 60 per cent. of the cases.

Aside from the lymph node enlargement, the blood count is most characteristic and tends often to confuse the disease with acute leukemia. A rise in the white cell count to 17,000 or 20,000 is the rule. The stained smear reveals that the increase is due entirely

* From the Buhl Memorial Laboratory, Harper Hospital.

1. Bloedorn, W. A., and Houghton, J. E.: The Occurrence of Abnormal Leukocytes in the Blood in Acute Infections, Arch. Int. Med. 27: 315 (March 15) 1921.
2. Sprunt, T. P., and Evans, F. A.: Infectious Mononucleosis, Brit. M. J. 1: 95 (Jan. 15) 1921.
3. Tidy, H. L., and Morley, E. B.: Glandular Fever, Brit. M. J. 1: 452 (March 26) 1921.
4. Acute Benign Lymphoblastosis, editorial, Brit. M. J. 1: 649 (April 30) 1921.

to mononuclear cells. These cells are of the lymphoblastic type and there are many with bilobed Riedel nuclei. The average lymphocyte percentage runs from 75 to 85.

The lymph nodes and spleen decrease in size more slowly, but the spleen is not usually palpable after the fourteenth day. The blood count gradually returns to normal, but this may take several weeks.

The prognosis is favorable. Morley and Tidy state that only four fatal cases are recorded.

The convalescence is noticeably slow, and a feeling of weakness persists for some time. In the first case here reported, the hemoglobin was 60 per cent. during the illness, and about three weeks later reached only 75 per cent. The patient complained of considerable lassitude at this time. The anemia and the persistence, for some time, of palpable glands have been repeatedly observed.

DIFFERENTIAL DIAGNOSIS

Although there are several conditions, such as tuberculosis, mumps and acute cervical adenitis, which glandular fever may simulate, there is no trouble in differentiating them, if a careful physical examination and a blood count are made. Acute lymphatic leukemia is ruled out with greater difficulty; but usually the milder course and the lack of hemorrhages in glandular fever, along with a study of the blood picture, are sufficient to rule out leukemia. The blood smear is quite different in appearance from that of leukemia. There is a lack of immature, atypical and degenerating forms of leukocytes, and the presence of large numbers of the bilobed or Riedel type of white cell is quite distinctive. In view of the favorable outcome of glandular fever, and the hopeless prognosis of lymphatic leukemia, a correct diagnosis is especially important.

OBSERVATIONS ON GASTRIC AND DUODENAL MOTILITY IN DUODENAL OBSTRUCTION *

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The case herewith reported is presented because of its bearing on certain physiologic principles of gastric and duodenal motility in relation to pathologic states of the duodenum.

REPORT OF CASE

History.—Baby B., aged 7 months, was referred to the hospital by Dr. John Zahorsky, April 22, 1921, with a diagnosis of "acute obstruction of the small bowel." The chief complaints were vomiting, cessation of bowel movements and emaciation. The present illness began, April 15, 1921, with vomiting. Vomiting continued to be more or less constant. The vomitus at first was yellow and acid; later it was green, but never fecal in nature. The child cried a great deal and was restless. Urination was infrequent. Enemas and a special diet had been given since the onset. There had been more or less gastric disturbance since birth, which was normal and at full term. The child suffered an attack of vomiting and convulsions on Easter Sunday. The weight, appetite and bowels were fairly normal until the onset of the last illness.

Examination.—The child was slightly emaciated; the temperature was 101 F. The abdomen was slightly flattened, which was especially evident when the child lay on its back. There was no abdominal rigidity, tympanitis or apparent points of tenderness. A distinct elevated band extended transversely across the abdomen 1 inch above the umbilicus; this showed motility. There was no palpable mass. The urine was lemon colored and acid. It contained no sugar, a trace of albumin, a few casts and white blood cells. The gastric contents contained bile (quantitative acid analysis not made), but no fecal matter.

Roentgen-Ray Examination (H. W.).—After thorough lavage, a 3 ounce barium mixture was left in the stomach. A roentgenogram taken ten minutes after the meal showed barium in the antral portion of the stomach; the pyloric sphincter wide open; the "cap" and duodenum filled to the left border of the vertebral column; the terminal portion showing a smooth, rounded surface, and no filling defects (*A*, in tracing). A roentgenogram taken eight minutes later showed a reduction in the amount of barium in the stomach and a further increase in the size of the duodenum, powerful peristaltic waves in the antral region, open sphincter, cap and duodenum greatly distended (*B*). The third portion of the duodenum occupied a transverse position, the terminal portion lying just below the stomach and to the left border of the vertebral column. A roentgenogram (*C*) taken twenty-five minutes after the meal, showed the stomach well filled and quiet, the pyloric sphincter open, the cap and first portion of the duodenum practically free of barium and filled with gas, a marked reduction in the cross diameter of the third portion (transverse) of the duodenum, and a smooth terminal surface of the duodenum, save for the lower border, which suggests an acute bend in the lumen of the intestine. In each roentgenogram there was evidence of a few flakes of barium below (caudal) the terminal portion of the shadow. The roentgen-ray diagnosis was: obstruction of the small intestine (kink) about the region of the ligament of Tritz, or at the point of emergence of the duodenum from its retroperitoneal position.

Operation and Results.—Operation was performed by Dr. Roland Hill, whose report is herewith presented. "Owing to the diagnosis of obstruction of the small bowel at the ligament of Tritz, the abdomen was opened by a 3 inch incision through the left rectus about 1 inch outside the umbilicus. The cecum and appendix presented at the wound. Examination of the small bowel at the ligament of Tritz was negative except that the bowel was somewhat distended with gas. In the lower part of the abdomen in the left side of the pelvis was found a mass about the size of a baseball. This was covered with peritoneum and had small bowel running into and proceeding from it. The location was about 1 foot from the cecum. The peritoneal covering of the mass was opened, when it was found that it consisted of about 1 yard of small bowel. This was slate colored and collapsed. Examination showed that the bowel was in a sac of peritoneum and had slipped through an opening in the root of the mesentery of small intestine. It was nonadherent and not inflamed. From the history, it was believed to be of congenital origin. It was reduced with some difficulty and the rather large slit in the mesentery was sewed over. The abdomen was closed without drainage, but the child collapsed and died within a few hours."

COMMENT

An examination of the patient prior to the administration of the barium meal demonstrated a transverse elevation of the abdominal wall from under the margin of the right costal arch to a point about 1 inch to the left of the midsternal line, occupying the usual position of the transverse colon. There was no evidence of abdominal rigidity, tenderness or tympany. Under moderate manipulation (not painful to the infant), the elevated portion would collapse, a gurgling sound being associated with this diminution in size. After a few moments, the mass would rapidly reappear and occupy a position as previously. Auscultation over the area of the pyloric sphincter elicited loud gurgling sounds as the mass was reduced under pressure. Similar, though less loud, sounds occurred as the mass refilled. Special attention was directed to any possible

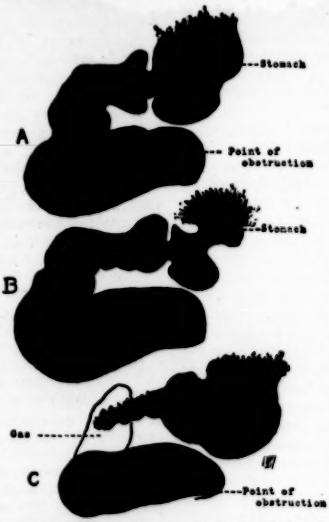
* From the Medical Service, Bethesda Hospital.

spontaneous motility of the mass. At frequent intervals, there occurred what appeared to be a simultaneous decrease in the extent of the entire mass, such decrease usually resulting in its complete disappearance. Waves of progressive motion, as observed in the stomach in cases of pyloric stenosis, were not demonstrable. It appeared that the mass as a whole contracted on itself. Several times during the course of the examination what appeared to be true progressive peristaltic waves were observed in the region just above the mass. These waves were seen to occur at times of greatest distention of the transverse elevation. The relation of the two types of movement in the two regions associated with the changes in size of the mass, the absence of fecal matter and presence of bile in the vomitus, the continual return of gastric content, together with the absence of abdominal rigidity, and local or diffuse tympanites, led to the assumption of an obstruction of the terminal portion of the duodenum or upper portion of the small bowel. As shown above, this assumption was verified by roentgenographic and surgical procedures.

The points of clinicophysiologic interest in this case are: (1) the relation of gastric to duodenal motility; (2) the relation of distention of the duodenum to gastric motility; (3) the relation of duodenal filling and obstruction to vomiting, and (4) duodenal motility.

1. *Relation of Gastric to Duodenal Motility.*—According to the theory of "the acid control of the pylorus," hydrochloric acid is the exciter of reflexes which cause both opening and closure of the pyloric sphincter. That is, acid in sufficient concentration in the antral region excites the reflex opening of the sphincter, while in the duodenum it excites reflex closure. Certain recent experimental work, while not disproving the possible action of acid on gastrointestinal motility, tends to show that acid alone is not sufficient to explain the mechanisms involved in the acts of opening and closing the sphincter. Luckhardt, Phillips and Carlson,[1] for instance, have shown that there is a greater relation between pyloric and antral activity than between pyloric activity and acid concentrations. McClure, Reynolds and Schwartz [2] also have shown that the introduction of acid into the duodenum of the human being is not sufficient to excite closure of the sphincter. Wheelon and Thomas [3] have shown that the sphincter possesses rhythmic contractile powers which bear a definite relation to the sequences of motor action in the stomach and duodenum.[4] The case here reported lends evidence to the assumption that acid is not alone responsible for the acts of opening and closing the sphincter for the reason that chyme loaded with bile, following regurgitation into the stomach, was again passed into the duodenum because of active gastric peristalsis, these movements of the fluid continuing until such a time as vomiting rid the stomach of its contents. This observation may be looked on as an exaggerated example of the acts of regurgitation which Spencer, Meyers, Rehfuss and Hawk [5] have found normally occurring during the process of gastric digestion.

The objection may be raised that such deductions are not warranted from the study of pathologic cases. However, if the acid theory is correct for the normal, it must also hold, at least in part, for the sick individual. According to this theory of acid control, the acid chyme first presented to the closed duodenum should have reflexly caused a high degree of contracture in the sphincter. Its neutralization should have caused or permitted the pylorus to open again, provided the acidity was sufficiently high in the antrum. As a matter of fact, it was found that material was passed normally into the closed duodenum following a barium meal, until the duodenum was markedly distended. Under distention, the duodenum reacted in such a manner as to cause the passage of its contents back into the stomach, such contents being again delivered to the emptied or partially emptied duodenum because of gastric motility. This migration of the chyme ultimately resulted in a bile-acid mixture; nevertheless, this material when regurgitated into the stomach passed from this viscus to the duodenum as readily as fresh food.



Tracings of roentgenograms showing the relation of gastric to duodenal motility: *A*, roentgenogram taken ten minutes after barium meal by stomach tube; *B*, roentgenogram taken eighteen minutes after meal, and *C*, roentgenogram taken twenty-five minutes after meal. The loss of tone and motility of the stomach after regurgitation of part of the duodenal contents may be noted.

2. *Distention of the Duodenum and Gastric Motility.*—Rapid distention of the duodenum is sufficient cause to excite tonic closure of the pyloric sphincter, nausea and vomiting.[2] However, it appears from the case herewith reported that the stomach is capable of passing material into the duodenum in spite of an obstruction to its egress from this segment. This appears to indicate that the power of the stomach to pass material through the sphincter may be sufficient to offset the resistance offered by the duodenum, and cause a marked distention of this segment. That is, the stomach's power to pass material through its sphincter may be sufficient to cause a marked distention of the receiving segment of intestine. As shown in the accompanying tracing, marked distention of the duodenum

1. Luckhardt, A. B.; Phillips, H. T., and Carlson, A. J.: Am. J. Physiol. **1**: 57 (Oct.) 1919.
2. McClure, C. W.; Reynolds, L., and Schwartz, C. O.: On Behavior of Pyloric Sphincter in Normal Man, Arch. Int. Med. **26**: 410 (Oct.) 1920.
3. Wheelon, H., and Thomas, J. E.: Am. J. Physiol. **54**: 460 (Jan.) 1921.
4. Wheelon, H., and Thomas, J. E.: J. Lab. & Clin. Med. **6**: 124 (Dec.) 1920.
5. Spencer, W. H.; Meyer, G. P.; Rehfuss, M. E., and Hawk, P. B.: Am. J. Physiol. **39**: 459 (Feb.) 1916.

can be associated with an active stomach. Similar conditions are frequently observed in cases of partial obstruction of the duodenum resulting from adhesions with the gallbladder or an old ulcer. However, there seems to be a limit to the extent of distensibility of the duodenum. As shown in the tracing, the duodenum may partially empty itself into the stomach. The stomach at such times is quiet. Now, since the barium passes into the stomach from the duodenum after the duodenum has been thoroughly distended, it appears logical to believe that the distention was an effectual stimulus to duodenal motility. This motility, while not definitely of a peristaltic nature, is sufficiently powerful to pass material through the sphincter into the stomach. From the roentgenographic results, this action of the duodenum was most marked in the descending portion. This indicates that the pressure exercised by the contracting duodenum was either sufficient to force open the pylorus or that a positive phase in the duodenum was associated with a reflex inhibition of both the pylorus and antrum, i. e., contrary or reciprocal innervation. Possibly both factors enter into the composition of such acts of regurgitation.

3. *Relation of Duodenal Obstruction to Vomiting.*—It appears in the case herewith reported that vomiting resulted primarily because of duodenal distention. Experimentally, vomiting can be readily induced by rapid or gradual overdistention of the stomach or duodenum. In such experiments it may be observed that the act of vomiting consists of an active duodenal contraction (tonic), with a loss of rhythmic segmentation followed by tonic closure of the pyloric sphincter (at times part of the antrum) and more or less loss of tonicity of the body of the stomach. Retching movements usually appear with closing of the sphincter. In the present case, the regression of material from the duodenum into the stomach was repeatedly observed; however, no true act of vomiting occurred during the period of roentgenographic examination. Nevertheless, the constant vomiting and the type of activity observed leads to the conclusion that duodenal distention was the cause of vomiting in this case. This conclusion is of more weight when it is recalled that there was but little intestinal retention and absorption of toxic material.

4. *Duodenal Motility.*—In the dog, duodenal motility consists of rhythmic segmentation and peristaltic waves. Wheelon and Thomas (results not yet published) have shown that peristaltic activity of the duodenum bears a definite relation to that of the pyloric sphincter and antrum. Cole has described peristaltic activity in the first part of the human duodenum.[6] However, our present knowledge of the motility of the human duodenum is limited and far from satisfactory. The regurgitation of bile and fecal matter in cases of intestinal obstruction have been explained on the theory of antiperistalsis, possibly excited by toxic substances. In the present case, the obstruction of the intestine was so high and of such a nature as to prevent retention or the regression of any considerable amount of material. However, as pointed out above, the segment of intestine in direct communication with the stomach did show a type of motility which might be likened to a compression wave, that is, a more or less simultaneous contraction of the entire segment. In the experimental animal, rapid distention of the duodenum causes cessation of rhythmic segmentation and peristalsis; however, this segment, following such excitation, shows a marked degree of contracture. At times, such contracture is sufficient completely to occlude the lumen of the intestine. In this respect, the present case demonstrates a type of duodenal motility that can be experimentally produced in the dog. Similar reactions of the duodenum have been observed repeatedly both in the dog and in man following the administration of pilocarpin.

6. Cole, L. G.: Physiology of the Pylorus, Pilleus Ventriculi and Duodenum as Observed Roentgenographically, J. A. M. A. **61**:762 (Sept. 6) 1913; Am. J. Physiol. **42**:618, 1917.

SUMMARY

The case reported here presents the following points of physiologic interest:

1. Gastric motility was of sufficient strength to cause marked distention of an occluded duodenum.

2. Distention of the duodenum beyond a certain point is sufficient excitation to cause this segment of intestine to contract in such a manner as to force its contents back into the stomach.

3. The degree of acidity of the chyme apparently is not the only factor involved in the opening and closing of the pyloric sphincter.

4. Vomiting is associated with an active contracture of the duodenum and sphincter. The period of nausea preceding the act of vomiting may be looked upon as the result of the preparatory changes in the duodenum and sphincter to this act.

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OBSTETRIC DEATHS

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The thought that the number of deaths due to the process of generation is unnecessarily large naturally suggests an inquiry as to the best means of reducing this mortality.

There are two ways of approaching this subject: the statistical and the clinical. I have chosen the latter for these reasons: The mere figures in regard to deaths of mothers, embryos, fetuses, and new-born infants may be most misleading unless they are analyzed and qualified in the light of clinical experience. For example, there is no report whatever on abortions or miscarriages in any public health reports, and yet the mortality of the embryo and fetus by expulsion from the uterus before viability or by intra-uterine disease is much the heaviest item in the mortuary statistics of the generative process, namely, from 20 to 25 per cent., a figure arrived at only by a computation from the private case records of the individual physician. Take, again, the comparison between hospitals and private practice—an important detail in studying methods for reducing the obstetric mortality of maternity.

There are three classes of hospitals. One admits only respectable married women of a fairly well-to-do class, does not have an ambulance service, and has a minimum of complicated cases. The second deliberately refuses difficult cases, has no provision for dealing with them, and actually transfers cases that become complicated in the hospital. The third makes a special bid for pathologic conditions, has an active ambulance

service, and is a sort of clearing house for all the cases beyond the skill of the ordinary practitioner in a congested civic population. I have been officially connected with all three classes of hospitals, and know by experience how valueless a comparison of their statistics would be.

Consider also the dubious character of the figures that come to a health board from private practice. Many women in this country die from a perforated uterus in the active treatment of abortion. The true cause of death is either not recognized or is deliberately concealed. Heaven knows how many deaths from puerperal infection are reported under other names: certainly a goodly number.

Consequently I prefer to make a general computation of maternal deaths from the observation of many years of consulting private and hospital practice. I believe that the average maternal mortality from the process of generation is about 0.3 per cent. in private house practice and about 0.1 per cent. in the best conducted maternities not dealing with specially complicated cases. The goal we should set ourselves, therefore, is to reduce the mortality of the generative process to a general average of about 0.1 per cent. By doing so in the United States, we would annually conserve the lives of 5,000 women at the most interesting and valuable period of their existence. The figures in regard to the product of conception are more easily arrived at: at a conservative estimate, 20 per cent. are lost before viability and at least 5 per cent. are stillborn or die directly after birth. It is not possible to eliminate all these deaths; but they can be reduced.

The question next presents itself: What are the causes of avoidable maternal, fetal and infantile mortality? Maternal deaths may be ascribed to: (1) accidents, such as hemorrhage; rupture of the uterus from overlooked obstruction; injudicious use of pituitary extract; technical errors in operative procedures; anesthesia; (2) embolism, acute dilatation of the heart, profound emotion, conditions often unavoidable; (3) the toxemias and eclampsia, usually avoidable; (4) infections, minimized by proper technic and efficient curative treatment, but not wholly avoidable, and (5) intercurrent affections not usually controllable.

The 20 per cent. of intra-uterine deaths are due to apoplexies of the ovum, usually the result of imprudent physical effort or of high blood pressure; to any of the intra-uterine diseases or accidents, including syphilis, and to faults of development. The 5 per cent. of deaths in labor or directly afterward are ascribable to the complications of parturition, often mismanaged. Finally, the most important question of all presents itself for our consideration: What are the most practicable and efficient means of reducing the mortality of the generative process? To my mind, they are three in number:

1. Improvement in the obstetric teaching of our medical schools. This was so bad twenty-five years ago that some of the most prominent of our medical schools would have been promptly closed by any European government. In our methods, clinical material and roster, we are still inferior to Europe.

2. Multiplication and enlargement of maternity hospitals, under heads competent to deal surgically or otherwise with all the complications and sequelae of the child-bearing process, including all the diseases of women.

3. The establishment of maternity centers for the poor in order to give the women prenatal care, to furnish skilled attendants in labor, and to follow up the results of childbirth.

In all three of these measures, the state should lend a helping hand in order to develop and support the largest possible maternity hospitals connected with medical schools, and to assist in the erection and maintenance of smaller maternities scattered over the country at frequent intervals; not to give instruction, as in the faulty conception of their purpose in Pennsylvania, but to afford favorable environment for the best care of the patients.

Finally, the state should assist in the establishment and maintenance of maternity centers or outpatient departments in the congested districts of towns and cities. Sir Arthur Newsholme showed conclusively that whenever this was done in Great Britain, obstetric mortality was markedly reduced; so that the English government, I understand, now bears half the expense of maintenance wherever these centers are established.

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INTERPRETATION OF DIGESTIVE SYMPTOMATOLOGY

RELATIVE TO CHANGE IN SYMPTOMS AND EXTRINSIC FACTORS *

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Intense study and painstaking investigation of the most important subject of change in symptoms will yield valuable and helpful information. To me it presents one of the most fascinating and interesting chapters in medicine, because of the ever-changing and puzzling syndromes one is continually meeting.

To achieve a happy solution of the various problems, we must study the symptoms from their very incipience to the moment of consultation, minutely noting every change, and at the same time exerting our best efforts properly to evaluate the significance of the variations.

As lack of time and space does not permit a comprehensive discussion of the subject, I shall limit my discourse to several organs.

GASTRIC ULCER

Gastric ulcer offers an excellent example for study. A typical case will give an early history of indefinite subjective dyspeptic symptoms, e. g., discomfort, fulness, distress, gas, possibly pain, heartburn and other complaints which we term a dyspeptic syndrome. The objective signs are tenderness and pain on pressure; muscle spasm may or may not be noted. At first these symptoms do not appear after every meal or during each day; later they may appear after the heaviest meal. As the condition progresses, we note a more intimate relationship to the intake of food; the subjective symptoms and objective signs appear before or after each meal, and are greatly influenced by the character of nourishment.

Every medical man is or should be entirely familiar with the pathologic physiology causing the foregoing syndrome.

In a large percentage of cases the picture as described is not presented at the first consultation, but

* From the Digestive Clinic of the Johns Hopkins Hospital.
* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

the most bizarre, jumbled and contradictory symptoms imaginable are given. Instead of the pain being confined to one point, notably the epigastrium, it may radiate upward through the chest—or to the back—the hypochondriac regions, or downward to the right or left. All relation to the intake of food may be lost—the pain appearing at any time during the day or night—apparently absolutely independent of nourishment. Further, the influence of the character of food (solid, mushy, liquid) seems entirely lost.

As to the mode of onset and disappearance, all regularity or semblance of order in the appearance of symptoms has vanished and we find the pain at one time coming on slowly; at another, quickly, and disappearing in the same unusual manner. Where pain was heretofore entirely or greatly relieved by vomiting, now no relief is obtained. If the temperature (hot or cold) of food and drink influenced the syndrome, now it has ceased to bear any relationship or has changed its characteristics. Where exercise (walking, running, swimming, etc.) played a rôle, it has now ceased. Posture (lying, sitting, standing) has likewise lost its influence, as have seasonal (damp, dry, spring, summer, fall, winter) changes. The periodicity, so striking in a goodly percentage, is found to be lacking, and the symptoms are either constant or merely remittent.

In order to interpret these symptoms, one naturally asks: Why the changes? Briefly, the answer is as follows: The edges of the ulcer may have become calloused; healing is prevented, and a constant irritant is present. Penetration to the serous coat may take place resulting in the exudation of lymph; or perforation into another organ (lung, pancreas, intestine, liver, gallbladder) may occur, both producing anatomic deformities resulting in functional disturbances as regards motor, secretory and sensory capacities of the stomach; and the same may be said of the organs secondarily involved.

PYLORITIS AND PERIGASTRITIS

Pyloritis and perigastritis caused by inflammatory changes often produce structural, functional and reflex changes and symptoms.

Relative to the pylorus, we have seen cases in which absolute tumor masses were formed at this point because of inflammatory exudate; also such large amounts of scar tissue had been formed about the pyloric orifice as to make one believe the growth malignant until microscopic investigation revealed it otherwise. These cases show obstruction and tumor mass, which is usually movable in the epigastrium. With loss of weight and occult blood in addition to the foregoing findings, one is often puzzled whether to diagnose the condition as a malignant or a benign process.

We should never lose sight of the proved fact that subsidence of symptoms is not proof that the ulcer has healed, and this knowledge should be an incentive to keep in communication with the patient after an apparent cure.

When perforation with adhesions resulting in deformities and interference with functional capacity takes place, pain may be constant instead of remittent or intermittent, because the condition has changed from one of intermittent irritation, inflammation or ulceration with spasm, to one of permanence, i. e., an organic state.

These cases impress us with the danger of making a diagnosis on one symptom, and emphasize the necessity of studying all phases of the associated phenomena. A contracting callus in the body of the stomach, pylorus or cardia will cause obstruction—the former producing an hour-glass formation—and both complications usually resulting in a complete change of symptomatology.

A carcinomatous degeneration of the ulcer will produce symptoms entirely at variance from the original dyspeptic syndrome.

PERFORATION AND HEMORRHAGE

Relative to acute change in symptoms, attention is directed to perforation or hemorrhage into the lesser or greater peritoneal cavity, further remembering that the latter process may also take place into the stomach or intestine. These occurrences, according to Moynihan and Bolton, are the only signs we have of acute ulcer.

Time and space will not allow of other than brief mention of the more important features regarding these two very important and serious complications.

In perforation, the pain usually appears suddenly (unless there is a slow leak) with decided shock. Occasionally—and these cases often terminate fatally—the symptoms may subside markedly, lulling both the patient and the physician into a false sense of security until stormy symptoms and conditions again appear, at which time it is too late to introduce successful measures. This secondary subsidence, however, does not always occur; often symptoms become progressively worse. Ulcers on the anterior surface of the stomach are more likely to perforate than those elsewhere.

Involuntary muscular rigidity should always be a sign of the greatest significance, as it denotes serious underlying trouble. In perforation it is due to a visceromotor reflex, brought about by the chemically irritating material ejected from the ruptured viscus, with a resulting general peritoneal inflammation.

Hemorrhage may appear insidiously, although very often the rupture of the vessel is accompanied by pain, the latter usually subsiding. The pulse does not improve (unless bleeding ceases) but continues to mount, and loses its sustaining qualities; later, a hemic murmur is noted; increased respiration, air hunger, excessive thirst, cold extremities and subnormal temperature finally appear.

In marked contradistinction to the muscular rigidity encountered in perforation, we find in hemorrhage a soft, pliable, supple abdominal wall with no muscle spasm, owing to the fact that blood does not possess the chemically irritating quality of the fluids ejected from the involved organ.

Ulcers situated in the vicinity of or on the lesser curvature show the greatest tendency to bleed.

CHANGES IN SYMPTOMATOLOGY OF GALLBLADDER

As to processes resulting in a change in gallbladder symptomatology, one should consider the spread of inflammation through the wall resulting in adhesions to the liver, duodenum, pylorus, hepatic flexure and appendix. Thin, velamentous adhesions may cause greater disturbance than those of a heavy texture, depending on the location and relationship to the surrounding structures. Ulceration into the duodenum has been known to occur, and malignant changes must also be kept in mind. We are more likely to encounter gangrenous processes in acute conditions, and we should always remember this complication as a possibility.

Cases have been noted in which a cardiac involvement has undoubtedly been produced because of toxic and reflex influences having their incipience in an infected gallbladder. Myocarditis, anginoid symptoms and cardiac failure have been known to occur, as have also irregularities and palpitation.

We have noted cases in which it has seemed from the history and subsequent clinical course that a colitis —with marked diarrhea and irregularity of bowel movement—had been caused by a focal infection arising in the gallbladder.

Although secondary involvement of the pancreas from gallbladder disease, with the usual pancreatic manifestations, including bulky and offensive stools, is a well known condition, I feel it of sufficient importance to warrant a word here.

There can be no doubt that marked infections of the urinary tract and other conditions are many times due to primary infection of the gallbladder. The right kidney is most often affected.

Lastly, the possibility of an arthritis from the same source should not be overlooked; and further, it is well to remember that with focal infections, here or elsewhere, the endocrines may become secondarily involved, notably the thyroid.

Personal experience convinces me that often a double lesion exists, e. g., gallbladder infection and chronic appendicitis with structural changes and adhesions in each case; and it is a moot question which is primary. Pericholecystitic adhesions may mechanically interfere with the physiologic functioning of the stomach, and reflexly cause inhibition of pyloric relaxation with later deficiency in secretory power; and also, through the same intermediary, interfere with the proper functioning of the ileocecal valve, with the attendant symptoms. If the appendix be also involved, it will likewise produce local and reflex interference with physiologic processes in the stomach and intestine; and one may well imagine the bizarre symptoms such combined conditions will produce.

Cases of attachment between the gallbladder and the appendix have been reported, but this type has not been found among the patients I have seen.

Obstinate resistance to all modes of treatment should lead one to suspect an organic basis as an etiologic factor. When observing changes in symptoms, it is well to remember that prolonged pain and other untoward conditions may lead to an advanced neurotic state.

APPENDIX, PANCREAS AND INTESTINE

Relative to the appendix, we should not forget the kinking due to inflammation; also the involvement of other organs. The appendix may become attached to the gallbladder, intestine, ureter (which may later lead to pyelitis), tube, ovary, rectum or bladder. After these changes have occurred, the symptoms may refer to each of the organs secondarily affected, in addition to the original symptoms characteristic of appendix involvement. This will explain the fundamental reasons for the contradictory and puzzling changes in symptoms often presented with a diseased appendix.

One must not overlook the reflex changes encountered, such as pylorospasm with hyperchylia gastrica and hyperchlorhydria; the latter eventually may result in hypochlorhydria or achylia if the process continues for a sufficient time; also in this regard is to be noted the reflex spasticity of the transverse colon, resulting in a damming back of the fecal column with stasis in the cecum and ascending colon resulting in ultimate atony, followed by dilatation and colitis. One may go even further and call attention to the marked interference with the physiologic functioning of the ileocecal valve, which also markedly disturbs normal intestinal functioning. As to the latter point, it is interesting to note that Hurst considers the condition due more to failure or relaxation of the ileocecal sphincter than to spasm.

A point well worth keeping in mind relative to acute processes regarding this and all other organs of the abdomen is that involuntary muscular rigidity should be a direct hint of an advanced underlying inflammatory change which is sufficient to cause decided visceromotor reflex.

Because of the indefinite and obscure symptomatology of the pancreas, we are unable to present any absolute facts which would really be helpful in the discovery of variation in symptomatology because of secondary changes. The great difficulty relative to the pancreas is that often one cannot be sure as to when it primarily becomes involved. Carcinoma with cachexia and its concomitant symptoms is an exception; in that case, however, the course would be the same as in malignancy in other organs. If the head of the pancreas is involved, jaundice may be a fairly early symptom. These cases, according to Garrod, may exhibit symptoms of exophthalmic goiter, such as tremor, dermatographia, Möbius' and Stellwag's signs and exophthalmos, which are due to disturbance of the sympathetic through the ganglions which lie so near the pancreas; steatorrhea and azotorrhea may occur and are highly suggestive of pancreatic involvement.

As to chronic conditions of the large and small intestines, changes in symptoms may be due to inflammatory involvement of the liver, gallbladder, duodenum, stomach, spleen, kidney, ureter and pelvic organs, also kinks due to inflammatory and postoperative adhesions. Functional, structural and reflex changes, spasticity, hypertrophy, atony, dilation and colitis may be produced, resulting in decided modification of the primary syndrome.

Malignancy, with its secondary manifestations, is always to be kept in mind, especially as regards the large intestine. Syphilis and tuberculosis should receive consideration.

The discussion of this fascinating subject must needs be brief; but I trust that from the hints offered, the reader has obtained some ideas which will prove of assistance along these lines. My object has been to present concrete reasons for the production of and variation in reflex or protective, functional and structural symptoms and changes.

EXTRINSIC FACTORS

The subject of extrinsic factors assumes a position of importance whenever we approach the discussion of digestive symptomatology, yet it seems to us that it is eternally and ever being forgotten by the diagnostician. I make this statement advisedly and only after close attention to and intense study of personal cases which have come to operation or whose progress has been watched for a sufficient length of time to enable us definitely to prove the diagnosis.

I desire first to speak of the cardiac conditions which manifest themselves in symptoms referable to the digestive tract. The first evidence of a failing myocardium is often shown by nausea, "gas," fulness, distress, flatulence, and various dyspeptic complaints referable both to the stomach and intestine. Its existence may be proved by the therapeutic test of a few drops of

digitalis daily; this many times clears the picture as if by magic.

Not a year passes but that several or more cases are presented at the Johns Hopkins Dispensary which exhibit none other than purely digestive complaints; i. e., loss of appetite, pyrosis, fulness, distress and at times pain in the epigastrium, flatulence, constipation and numerous other disturbances. These patients, on careful investigation, are found to be suffering from advanced tuberculosis of the lungs, and not infrequently cavity formation exists.

A most interesting type, of which I have seen several, is the achylic patient who comes for digestive disturbances, in which every examination, including blood investigation, is negative, and which later develops pernicious anemia.

The group presenting symptoms of indigestion, fulness, much flatulence, irregular and indefinite pain—in which all tests prove of no value—becomes interesting when we discover evidences of arteriosclerosis. We unquestionably encounter a certain number which have this malady as an etiologic factor.

My experience has taught me never to neglect investigation of the endocrine domain, as there exists a group of cases in which the first symptoms manifest themselves in disturbances directly referable to the digestive tract, attacking either the stomach or intestine, and indeed, at times, both. In the former, I have found hyperacidity and hypoacidity or achylia with its concomitant symptoms; and as regards the latter, diarrhea or constipation has been noted. It is inexplicable to me why these variations should occur in both hyperthyroidism and myxedema.

The possibility of thyroid malfunction leading to pancreatic diseases has lately been suggested.

While every one seems familiar with the fact that the digestive tract is often the mirror through which syphilitic and parasyphilitic maladies assert themselves, yet I venture to lay stress on this class of cases because I find that they are constantly overlooked.

A very important type with which I have had experience recently is one in which, without any apparent cause whatever, persistent vomiting, without any nausea, pain, fever or discomfort, appears; and further, on the most thorough physical examination, absolutely nothing of an abnormal nature is detected. The possibility of brain or spinal lesions, notably epidemic encephalitis, is suggested in such cases.

The reflex digestive disturbances arising from the urinary tract, such as inflammation, infection or stone in the kidney, ureter or bladder, should be borne in mind. Much work of late has been done on ureteral stricture in its relation to abdominal symptomatology, and we should therefore consider the possibility of this condition with those just mentioned. We are continually meeting cases in which the symptoms are apparently due to lesions of the digestive tract per se, but which, because of further investigation and subsequent study from diagnostic, therapeutic and operative standpoints, definitely prove to be reflex disturbances arising from pathologic lesions in the pelvic organs. Specific inquiry should always be made as to possible pregnancy.

I would urge the same care relative to close investigation of the male generative organs, notably infection or inflammation of the prostate.

Many times we discover digestive syndromes which are due to the chronic infections, notably those of the tonsils, teeth and the nasal, paranasal and frontal sinuses. In every digestive case, a comprehensive survey should be made with the object of discovering hidden or obscure foci of infection.

The digestive specialist as well as the general practitioner will find it of vast importance and invaluable assistance in every case to bear in mind the triad of possibilities: malignancy, tuberculosis and syphilis of any and all organs.

GASTRIC SYMPTOMS

AN ANALYSIS OF ONE THOUSAND CASES *

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The statistical study of gastric complaints frequently sets forth the clinical features of such conditions as ulcer, cancer and gallbladder disease, while few studies review the stomach complaints of a consecutive series of patients. As an apology for such a study, if such be necessary, the thought occurs that clinical conclusions are frequently wrong unless based on statistical study; because one tends to remember too well the unusual, and underestimates the real importance of the commonplace disease.

This series of 1,000 patients, almost all adults, was seen by my associates and myself during the last three years. It includes all patients who have required a gastric analysis and gastric roentgenologic examination, besides the minimum routine of case history, physical examination, urinalysis and Wassermann test. Other examinations, when considered necessary for reaching a final clinical diagnosis, were of course undertaken. The review is based on the clinical diagnoses; if further observation, or operation, has proved the diagnosis wrong, then the error has been noted. We fully recognize that there are unquestionably gross diagnostic errors which time or other physicians will bring out; yet, we feel that the final diagnoses approximate at least the best that we can reach with present methods of clinical investigation.

It is interesting to note at once that in 25 per cent. there was no recognizable organic pathologic condition; in 6 per cent. we were unable to classify the condition; that in 2 per cent. the complaints followed operation; that in 35 per cent. the pathologic condition discovered was intra-abdominal but not in the stomach, and that in 18 per cent. the pathologic condition was systemic. This leaves 14 per cent. of patients on whom definite gastric disease has been demonstrated.

PATIENTS HAVING GASTRIC LESIONS

Patients with gastric lesions, ever interesting to the gastro-enterologist, whether internist or surgeon, show the average incidence found per thousand in clinical offices, i. e., carcinoma, 38; sarcoma, 1; gastric ulcer, 16; duodenal ulcer, 83; duodenal diverticulum, 1; gastric syphilis, 1; hair ball, 1; total, 141.

Two cases warrant description here. The hair ball was diagnosed before operation on the following facts:

A girl, aged 9, of normal mentality, was brought by her mother on account of a large upper abdominal tumor the shape and size of the stomach, discovered by the child when bathing. The child was not very sick or undernourished, though slightly anemic, and "had a poor appetite." Question-

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ing brought out the admission that the child was in the habit of chewing the ends of her curls and, a year previously, following measles, had lost much hair. On fluoroscopic examination the barium mass was seen to hesitate just beyond the cardia and then to flow slowly down toward the pylorus, with a thinning at the center of the mass. The dome shaped upper end of the hair ball could be outlined in the plates. The stomach was empty in two hours. The mass after surgical removal was found to be a complete cast of the stomach with loose strands of hair going 8 inches through the pylorus. It weighed 500 gm.

The second case was seen in consultation. A woman, aged 37, had an indefinite history of indigestion for fifteen years. She had had during three months repeated profuse gastric hemorrhages, so extensive as to cause exsanguination. A round, hard, freely moveable tumor, the size of a baseball and readily disappearing beneath the ribs, was present in the left hypochondrium. The roentgen-ray examination was reported by the patient's physician as negative, and the stomach analysis disclosed, repeatedly, hyperacidity. Operative exploration was undertaken after repeated transfusions. A pedunculated spindle-cell sarcoma was removed from the posterior wall of the stomach, and thus far (seven months) the patient has been apparently well.

COMPLAINTS ARISING FROM ABDOMINAL EXTRA-GASTRIC PATHOLOGIC CONDITIONS

Our diagnoses show a considerable percentage variation from those commonly accepted as the causes of reflex indigestion. The appendix has been considered the cause of reflex in only seventy-eight cases, varying much from the 20 per cent. given by Vanderhoof in 1919. Our diagnosis were doubtless influenced by the fact that 130 of our patients stated that their appendixes were already out. We have become slow to diagnose chronic appendicitis as a cause of reflex stomach disturbance unless there is a rather definite history of acute attacks and no other pathologic condition is suspected.

Cholecystitis, with or without stones, appears as the diagnosis in 145 patients, nearly twice as many as suffering from the "reflex appendix." A great number of these gallbladders have not been considered surgical because many such patients make symptomatic recoveries under careful management. Frequently infective foci were evident and were corrected; and frequently correction of the associated constipation has given great symptomatic relief. When there was a history of repeated attacks, or of a chronic dyspepsia disabling the patient, then operation was advised. The clinical diagnosis of gallbladder disease has led to surgical exploration in thirty-five patients, approximately one fourth of those diagnosed gallbladder disease. The surgeon has considered the clinical diagnosis wrong in three cases. The chronically infected gallbladder has been considered the most frequent objective cause of indigestion in this series.

Constipation has been the etiologic factor for indigestion in seventy-one patients and, if we include colitis and other diseases of the large bowel, the figure is increased to ninety-eight. In three patients, large six hour gastric residues disappeared completely after the relief symptomatically of intestinal disease. Five patients with infection with *Ameba histolytica* came in because of gastric indigestion and not because of the occasional mild spasmodic diarrhea, which was admitted on close questioning.

The tapeworm as a cause of reflex stomach disturbances is uncommon:

A man, aged 60, complained that for two years he had had hunger pain, relieved by food and soda, and night pain requiring him to eat for relief. At times he was free from trouble. We felt sure of a peptic ulcer, and the roentgenologist reported gastric stasis with definite cap deformity, persisting after belladonna. The patient then confided that for several years he had possessed a tapeworm which physicians couldn't cure. He knew, because he had taken four cures unsuccessfully. The patient was examined on two subsequent occasions before taking treatment for his tapeworm, always with the same objective findings. Since being relieved of the worm he has been free from stomach symptoms, and his roentgenologic examination reveals a normal duodenal bulb.

SYSTEMIC DISEASE

It is worthy of note that in twenty-five patients the symptoms were apparently due to syphilis, and that tabes was responsible for five patients coming in for supposed gallbladder disease or ulcer. Migraine vomiting was interpreted by sixteen patients as "stomach trouble." Thoracic or circulatory disease was responsible for stomach complaints in seventy-eight patients. Pernicious anemia was found ten times, and this group is unique in our series, because not one patient in it possessed any abdominal scars.

Other general causes, such as sprue, epilepsy, Addison's disease, goiter, malaria, cirrhosis and metastatic malignancy, are found, but have not been classified because too infrequent.

FUNCTIONAL DISTURBANCES OR CASES WITH NO DEMONSTRABLE PATHOLOGIC CONDITION

The patient comes to the physician's office complaining of indigestion more often than of any other complaint, yet in 25 per cent. of all such cases we have been unable to demonstrate or even seriously to suspect organic disease accounting for the stomach complaint. The neurologist may often attach a name to the disease, and the materialist may say that neurasthenia is as much an organic disease as carcinoma; yet at present we cannot demonstrate the pathology and so must class it under malfunction. More knowledge may make this functional group smaller, but it will probably not be from usually attributing the symptoms of a hypersecretion or hyperacidity to the reflex gallbladder or reflex appendix.

This functional group includes those in whom searching investigation has failed to show organic disease to account for their stomach symptoms. We here place that large number showing poor gastric function attributable to irregular hours, over and under eating, chronic dietary indiscretions, visceroptosis, chronic debility, asthenia, neurasthenia, psychosis, menopause neurosis, etc.

Hyperacidity and hypersecretion, when very marked, are usually of functional origin. The five highest acidities in this series were found in patients without discoverable abdominal lesion. The ten patients showing the highest acidities include only three with organic disease.

Persistent achylia is unquestionably often functional, but should be considered so only after ruling out chronic gallbladder disease, carcinoma and chronic colitis.

Good gastric function is dependent on constitutional well-being; hence disturbance of function may be secondary to practically any disease, nervous or organic. The clinician who fails to spend as much time and effort as is necessary in getting the whole story leaves himself without the most valuable of all aids for the correct interpretation of symptoms. Physical examination and laboratory findings are important, but after all they give the final diagnosis in only a small portion of cases.

The asthenic, complaining individual bringing in roentgenograms of the "fallen stomach" usually attributes all complaints to this cause. Since the floating kidney went out of style, the reflex appendix is becoming less popular, and the roentgenogram of the stomach more popular. It seems a pity to inform such a patient of his visceroptosis. If he is so informed, then more emphasis should be placed on habit and debility as the cause of the fallen stomach than on the gastroptosis itself. Gastroptosis should be the last recourse as an organic diagnosis, because, after all, "it makes no difference where the stomach is but how it works."

Functional stomach disturbances may well be divided into two groups, in the first of which operation has not, and in the second has, been performed without relief; and the second group is larger than is right.

POSTOPERATIVE DISTURBANCES

The surgeon often rightly blames the internist for being too anxious to complete a refined diagnosis on an "acute abdomen"; the internist may at least as often blame the men doing surgery for not most carefully eliciting and recording a full preoperative history with complete diagnosis in every chronic complaint.

FINDINGS IN ONE THOUSAND PATIENTS EXAMINED FOR STOMACH COMPLAINTS

Present Clinical Diagnosis	Number		No. Pts.	Previous Operations: Appendix	Gall-bladder	Stomach	Pelvis
Organic gastric		141	..	..	..	..	..
Carcinoma	38		4	2	1	..	..
Gastric ulcer	16		5	3	..	2	..
Duodenal diverticulum	1		..	..	..	..	..
Duodenal ulcer	83		16	9	3	6	..
Hair ball	1		..	..	..	..	..
Gastric syphilis	1		..	..	..	..	..
Sarcoma	1		..	..	..	..	..
Reflex gastric		345	..	..	..	..	..
Appendix	78		1	..	..	..	1
Gallbladder	155		36	23	9	1	6
Constipation	71		18	15	..	1	3
Colitis	27		7	5	..	..	3
Pelvic	13		2	2	..	..	2
Tapeworm	1		..	..	..	..	..
Systemic disease		181	..	..	..	..	..
Pernicious anemia	10		0	..	..	..	..
Syphilis	19		3	2	..	1	2
Tabes	5		2	1	..	..	1
Circulatory	50		3	2	1	..	..
Lungs	39		4	2	..	..	1
Kidneys	17		3	1	..	..	1
Migraine	16		4	2	..	1	..
Others	30		1	1	..	..	..
Functional		292	..	..	..	..	..
Neurosis	156		47	31	4	2	10
Hyperacidity	44		8	8	1	..	..
Achylia	47		10	6	..	1	3
Psychic	10		1	..	..	..	1
Unclassified		59	15	7	3	1	3
Postoperative		22	20	8	6	3	9
Totals		1,000	202	130	28	19	56

Of these thousand patients, 202 had already had the abdomen opened before we saw them. Pelvic work had been done on fifty-six of the 458 women in this series, and thirty-eight of these fifty-six we could only call functional complaints. More than half of the patients previously operated on were diagnosed as having extra-abdominal or no objective pathologic condition, and yet I do not believe that our profession in the West is particularly derelict in diagnosis or overenthusiastic surgically as compared with other sections of the country.

One hundred and thirty patients stated that the appendix had been removed, and it is safe to say that this number would more closely have approached the total number of abdominal operations if the full facts could be ascertained. We have tried to establish how often stomach trouble has been relieved by removal of the appendix, leaving out those patients known to have had the appendix removed on account of acute attacks. Somewhat more than one half of such patients stated that their symptoms were unchanged by operation. Sufferers from migraine and from tabes lost the appendix to cure their disease, and thirty patients lost the same organ for relief of what later proved to be peptic ulcer or gallbladder disease; but the large majority of unrelieved patients were suffering from an indigestion of functional, not organic, origin. Careful history would have saved many of these patients unnecessary operation. (I might add that a few of our own patients operated on for a "reflex appendix" still come back to disturb us.) The appendix is held accountable for stomach disturbance far more frequently than operative results have justified.

CONCLUSION

In these 1,000 patients:

1. Fourteen per cent. actually had organic gastric disease.

2. The roentgenologic examination determined these cases accurately and with a very small percentage of error. Its negative value is therefore very high.

3. Thirty-four per cent. showed abdominal extragastric disease giving reflex stomach disturbance.

4. Inflammations of the gallbladder apparently caused more stomach disturbance than any other organic abdominal lesion.

5. Eighteen per cent. presented themselves for diagnosis of stomach trouble which, investigation showed, was due to demonstrable systemic disease.

6. Twenty-five per cent. presented no objective pathologic condition. Their complaints were considered secondary to habits of living, type of individual, or to chronic debility.

7. One third of all cases in which operation was previously performed fell into the functional group.

8. Six per cent. of all cases remained undiagnosed.

9. Thirteen per cent. or more of patients complaining of chronic stomach trouble had lost the appendix before coming to the clinic.

10. Ten per cent. of all women in this series had had previous pelvic operations, one-half done on frankly neurasthenic individuals.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. GAITHER AND BLACKFORD

DR. ROBERT POLLOCK, San Diego, Calif.: Some years ago one of our leading surgeons made the statement that the stomach is the greatest liar in the human anatomy. I think most of us will agree that this estimate was not too strong, but perhaps we have been allowing it to prejudice us too much. The subject of symptomatology will always be the opening wedge of a discussion of the patient's trouble. But a classification of these specific symptoms, their proper interpretation in terms of disturbed physiology and structural pathology is something that will always call for the most skilful analysis on the part of all of us. The statement that more than 20 per cent. of his series of something over 200 patients had previously had the abdomen opened for some cause or other conforms closely to my own observation, and when we take this in connection with his further statement that only 14 per cent. showed organic disease of the stomach, and so large a number as 43 per cent. of the cases were due either to systemic disease or to pure neuroses, we have food for thought. Of the 14 per cent. also that had an actual pathologic condition we will assume that not all of these came to operation. What, then, are we to say of the 80+ per cent. of beds in the general hospital that are occupied by surgical cases? Do we avail ourselves of the hospital

facilities for study? Do we always take our stomach cases and study them as thoroughly as we might? Within twelve months I have seen four cases of perforated peptic ulcer of the stomach sent to the surgeon. Happily, in each case the patient survived to tell his story, and in only one of those four had there previously been symptoms sufficiently pronounced to have him consult a physician. The question of the relation of stomach symptoms to circulatory diseases is one that we cannot emphasize too much. I would add but one symptom, dyspnea, to the ones just discussed. When we have symptoms referable to the stomach accompanied by dyspnea increased by exercise we should put the patient at rest and carefully study his circulation.

DR. JOSEPH SAILER, Philadelphia: It has been noted in all medical meetings that too little stress has been laid on the clinical studies of cases. I cannot agree with Dr. Blackford that the most important element is the history. It is important; but to my mind there is no one element that is more important than the others. Frequently it has happened to me that a tentative diagnosis made after what I hope was an adequate history has been completely changed after physical examination. In heart diseases on the verge of decompensation there is sometimes found only one symptom of which the patient complains, nocturnal pain similar to that of a duodenal ulcer. Not infrequently in achylia gastrica the patient presents a syndrome which would lead one to suspect disease of the gallbladder. This is really so common that I have come often to associate achylia gastrica in some reflex way with the gallbladder. It has happened to me a fair number of times that these patients have come to me with achylia gastrica who already have had operations on the gallbladder when it was said they had chronic disease of the gallbladder, or, when more frankness has been used, perfectly normal gallbladders, which meant that the gallbladder was not responsible for the symptoms produced. I will speak of only two other things. One is the very frequent association of an anxiety neurosis with achylia gastrica. This also seems to be a not uncommon symptom, and the patient comes not so much in fear of death as in fear of persistent ill health. He is often relieved by the means used to treat achylia gastrica. Auscultation of the abdomen is by no means the most important part of the diagnosis, but it is often of considerable value in aiding us in the diagnosis, particularly in certain forms of intestinal obstruction and gastric dilatation. I congratulate Dr. Blackford at having such a small number of gastric neuroses, 156 in 1,000.

DR. L. H. LEVY, New Haven, Conn.: The medical man of today is too prone to turn his case over to the laboratory for diagnosis. After one has had an experience with thousands of cases of gastric disturbance not only from examination from the roentgen-ray standpoint, from examination of the stomach contents, but also from physical examination, one becomes more and more impressed with the fact that he could have diagnosed conditions if the symptomatology had been gone into more in detail. I am sure that this is the experience of many other men. It is not only taking the history; it is the interpretation of the symptoms. Dr. Rehfuss has shown and it has been the experience of most men who do gastro-intestinal work that acidity is higher in some normal stomachs than in gastric ulcer. We have cases of carcinoma of the stomach in which the acidity is normal or above normal, and on the other hand, we have had cases of gastric ulcer in which the acid has been below normal. With new methods, such as the Buckey diaphragm and the introduction of air into the peritoneal cavity, diagnosis of a case becomes easier. Nevertheless, one must interpret the symptoms the patient presents.

DR. T. R. LOVE, Denver: It is quite true that the stomach is as big a liar as we have in the anatomy, but I also feel that the one who said the stomach is "the spokesman of the abdomen" gave us the key to this situation. I rather feel that one of the conclusions to be derived from this paper is seemingly to the effect that we are too hasty in our diagnosis of chronic appendicitis. I do not feel that the acute cases have anything to do with the discussion. In defense of the fact that many of these patients had been previously operated on for appendicitis without apparent relief of the stomach symptoms, I wish to call your attention to just one or two things. In the first place, we have absolutely no statistics that give us an idea of the number of cases of strictly chronic appendicitis submitted to operation without any further return of symptoms. We must at least agree that many cases of gastritis or, if you like, "abdominal indigestion," are really permanently relieved by removal of a chronic appendix. Many of them, if not completely relieved, will be relieved most of the time, or it is on exceptional occasions, as when the individual becomes unduly tired or becomes ill with an intercurrent infection, that the old symptoms will return, demonstrating the tendency toward a recurrence of the reflex symptoms which often developed at an earlier date before the appendix was removed. Then we must take into account another factor, that there is no reason why a patient cannot have two lesions instead of one. Then, too, keep in mind the relation of chronic appendicitis to reflex irritation of the gastric mucosa producing hyperacidity or subacidity or so-called mucous gastritis, which can accompany either one of the previous conditions and is not necessarily relieved by removal of the appendix. The patient continues to complain of symptoms which were not dependent on the appendix. The figures indicate a good many cases of duodenal ulcer and a far greater number of cases of gastric ulcer in which operation was previously performed. I think the condition may have been one depending on the irritation of an old appendix with symptoms continuing, due to a secondary train of disturbances which are not so easily corrected.

DR. ERNEST H. GAITHER, Baltimore: I wish to emphasize again the necessity of a complete, painstaking history, then following the various changes through the weeks and years, and from this information endeavor to find a solution of the problem. Dr. Love either came in late or did not hear what I said in my paper. He speaks about two lesions. I tried to bring that out definitely, the secondary lesion produced by adhesions between stomach and appendix, gallbladder and pelvic organs, etc. Particular stress was laid on these points.

DR. JOHN M. BLACKFORD, Seattle: There were seventeen kidney lesions in this series. Regarding the frequency of chronic indigestion and its cure by removal of the appendix: Within the last year we have taken another series of 1,000 consecutive histories without regard for the patient's complaint. Of these, fifty-eight patients had had the appendix removed: forty-eight for chronic disturbances; twenty-eight were not relieved. Of course, I do not want to leave the impression that we feel that the appendix is never responsible for trouble. In this series of 1,000 cases examined for stomach disturbances, 202 patients had had previous laparotomies and 131 stated that the appendix was out; nineteen had had stomach operations, two of which were gastropexies; 141 had organic gastric disease. The failures in diagnosis are evident. As to what Dr. Sailer had to say regarding the importance of the history, again do not let me leave the wrong impression. We do not want to minimize the importance of the things we all know are important, but to emphasize the extreme value of the often neglected clinical history. In more than half of our cases the diagnosis had to be made on the history because we had essentially negative physical findings.

Souvenir Volume Issued by Bacteriologic Institute.—A handsomely illustrated volume of nearly a hundred pages has been issued by the Instituto Bacteriologico of the National Public Health Service of Argentina, on the occasion of its fifth anniversary and change of directors. It is a center for research and experimentation as well as for production of sefums and vaccines and for aid in diagnosis and in study of epidemics and epizootics. Illustrations are given of the various departments, from those of entomology, pathology, cancer, organotherapy, biologic physics and chemistry, protozoology and experimental therapeutics to a public exposition of hygiene, library, etc. The new building, completed in 1916 during the centenary celebrations, is a large and handsome one with numerous accessory buildings. The "serpentario" is in charge of Dr. J. V. Negrette, and photographs are given (close-ups) showing him extracting the venom from some of his crotalus and lachesis subjects. The can in which the serpents are sent by express is also shown.

THE CLASSIFICATION OF CARDIAC DIAGNOSIS *

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The adoption during the last few years of a simple and clear cut classification of heart disease has been of such service to us in the cardiac clinic at the Massachusetts General Hospital and to practicing physicians with whom we have discussed it that a brief paper outlining it has seemed very desirable. We have assembled this classification in its present, fairly stable form from our experience in the cardiac clinic in particular, and from the writings of Mackenzie, Lewis and Cabot.

The old-fashioned terms, such as "mitral regurgitation," "myocarditis," and "cardiac dilatation," any one of which often sufficed in the past to cover the entire diagnosis of a case of heart disease, are rapidly being discarded in the sense in which they were formerly used, and yet even now in medical centers, as well as in distant rural communities, such diagnoses are sometimes made and apparently satisfy.

There are three main headings, under each of which every patient with cardiac symptoms or signs should be classified. They are, first, etiology; second, structural change; and third, functional condition. All three are important, but the diagnosis of structural change is less important than either etiology or function; yet the diagnosis of structural change was but a few years ago the only one made in a very large percentage of cases. One of the most important reasons for insisting on the etiologic diagnosis, besides allowing much greater accuracy in prognosis, is to forward the prevention of heart disease, about which the medical world is beginning to take more action than in the past.

It need be simply mentioned here that when a history and physical examination fail to classify a patient properly, recourse should be had to laboratory methods, the roentgen ray, electrocardiograph, Wassermann reaction, and blood-urine examination.

I. ETIOLOGY

1. Congenital heart disease.
2. Rheumatic heart disease.

Including heart disease resulting from tonsillitis, chorea, rheumatic fever and scarlet fever, and also including patients with mitral stenosis and young people with aortic stenosis or regurgitation not the result of syphilis, even though a clear cut history of any of these diseases of the rheumatic group cannot be obtained.

   A. Active (including the subacute rheumatic heart.)
   B. Inactive.

3. Diphtheritic heart disease.
4. Syphilitic heart disease.
5. Other rarer types of infectious heart disease.

Including invasion by the pneumococcus, the meningococcus, the staphylococcus, the influenza bacillus, the tubercle bacillus, and the echinococcus. Chagas has recently reported the common occurrence of cardiac trypanosomiasis in South America; therefore, in such a part of the world the etiologic grouping would contain cardiac trypanosomiasis as one of its chief subheadings.

6. Thyroid heart disease, a definite entity characterized by cardiac enlargement and often auricular fibrillation, at times paroxysmal.
7. Arteriosclerotic heart disease or cardiosclerosis, by far the commonest etiologic type of all.
8. Hypertensive heart disease, the result either of nephritis or of "essential" hypertension. The old term "cardiorenal" is ambiguous and often inaccurate, including, as it has done without doubt, many cases of arteriosclerotic heart disease or rheumatic heart disease with failure and albuminuria. The term used here—hypertensive—is, to be sure, only descriptive and not final; but it is the best available at the present time to cover this group of cardiac cases.
9. The nervous heart, including effort syndrome, the irritable heart of soldiers or cardiac neurosis, very common and to be differentiated from heart disease.
10. Rare etiologic types, such as cardiac tumors, traumatic heart disease, the beer heart, and the heart in obesity. The "athlete's heart" is a doubtful entity, in part at least fitting into the group of neuroses or nervous heart.

If the cause of heart disease is unknown in a given case, it should be so expressed for two reasons, first, in order to stimulate further study and longer observation of the patient, and second to stimulate further investigation of heart disease generally.

II. STRUCTURAL CHANGE

1. Myocardial. Under this heading, myocardial pathology, whether actual myocarditis or myocardial hypertrophy or atrophy, may be taken for granted according to the etiologic type, except in the case of the nervous heart and at times in congenital heart abnormalities. Thus, rheumatic heart disease implies involvement of the myocardium with the typical submiliary nodules of Aschoff; syphilitic heart disease implies invasion by spirochetes; arteriosclerotic heart disease implies myocardial degeneration with fibrosis resulting, and hypertensive heart disease implies hypertrophy. If the etiologic type of heart disease is stated, the myocardial changes associated with the type may be taken for granted.

Myocardial infarction from coronary thrombosis, if extensive, leading to cardiac aneurysm and perforation into the pericardium, is a structural change in the heart which is usually diagnosed at the necropsy table. There is clinical evidence of the condition, however, on occasion, in the presence of severe prolonged heart pain, if the thrombosis is extensive. Arteriosclerosis is the usual etiologic factor.

2. Endocardial. The only portion of the endocardium giving evidence of damage clinically is the valvular endocardium. Therefore, clinical diagnosis of endocardial pathology has perforce to be limited to valve changes.

   A. Mitral involvement with or without stenosis. This does not mean functional mitral regurgitation.
   B. Tricuspid involvement with or without stenosis. This does not mean a functional tricuspid leak.
   C. Aortic regurgitation.
   D. Aortic stenosis.
   E. Pulmonary regurgitation.
   F. Pulmonary stenosis.

* From the cardiac clinic of the Massachusetts General Hospital.

3. Pericardial.
   A. Acute fibrinous pericarditis.
   B. Pericardial effusion: (*a*) serofibrinous; (*b*) purulent, and (*c*) hydropericardium.
   C. Adhesive pericarditis.
   D. Pneumopericardium.
4. Cardiac size and position.
   A. Enlargement, usually meaning both hypertrophy and dilatation, the exact amount of each being indeterminable.
   B. Ventricular preponderance; either left or right ventricle may be relatively more enlarged than the other. Roentgen-ray evidence is often suggestive; but electrocardiograms are needed to demonstrate this condition.
   C. Auricular enlargement, sometimes evident by roentgen ray or electrocardiogram.
   D. Dextrocardia. The squat transversely placed heart of an obese patient and the vertical "narrow" or "ptosed" heart of the tall lean patient are in themselves unimportant. They are merely a feature of the given type of case.
5. Great vessels.
   A. Aortic dilatation: (*a*) general; (*b*) saccular aneurysm.
   B. Patent ductus arteriosus.
   C. Coarctation of aorta.
   D. Transposition of aorta and pulmonary artery (and other rare congenital defects).
6. Septal defects.
   A. Interventricular foramen.
   B. Foramen ovale.

III. FUNCTIONAL CONDITION

1. Heart failure.
   A. Congestive type, as expressed by edema, cyanosis, engorgement of neck veins and so on. This, of course, may be of any degree.
   B. Anginal type, just as important as the congestive type and often more so, expressed by heart pain.

An additional functional grouping such as that suggested by the New York Association of Cardiac Clinics is also very useful. It expresses directly the ability to work, as follows:

   A. Able to carry on the patient's usual activities.
   B. Able to carry on slightly to moderately curtailed activity.
   C. Able to carry on only greatly diminished activity.
   D. Unable to carry on any actvity (without distress).
2. Disordered heart action.
   A. Premature contractions (extrasystoles): (*a*) auricular, and (*b*) ventricular.
   B. Paroxysmal tachycardia: (*a*) auricular, and (*b*) ventricular.
   C. Auricular flutter.
   D. Auricular fibrillation.
   E. Heart block: (*a*) auriculoventricular; (*b*) intraventricular, including complete and partial bundle branch block and arborization block; and (*c*) sino-auricular, including auricular standstill.
   F. Atrioventricular rhythm and ventricular escape.
   G. Pulsus alternans.

COMMENT

To illustrate this classification and to show how satisfactory it proves to be in an analysis of a cardiac patient, the following diagnoses are added:

CASE 1.—Rheumatic heart disease (inactive) with mitral stenosis, right ventricular preponderance, auricular fibrillation and failure of the congestive type (able to carry on only greatly diminished activity).

CASE 2.—Arteriosclerotic heart disease with cardiac enlargement, ventricular premature beats, pulsus alternans, and failure of the anginal type (unable to carry on any activity).

CASE 3.—Cardiac enlargement and auricular flutter, of unknown cause (able to carry on slightly curtailed activity).

CASE 4.—Syphilitic heart disease with aortitis, aneurysm of ascending aorta, aortic regurgitation, left ventricular preponderance, and normal rhythm (able to carry on moderately diminished activity).

DIVERTICULA, DIVERTICULITIS AND PERIDIVERTICULITIS

OF THE SMALL INTESTINE, CECUM, COLON, SIGMOID FLEXURE AND RECTUM *

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A diverticulum is a non-neoplastic outpouching of intestine having a lumen that does or did connect with the bowel. Diverticulitis is inflammation of a diverticulum, and peridiverticulitis is an inflammation of structures surrounding the sac.

Diverticula may be congenital or acquired, the former being designated true and the latter false. In true diverticula, intestinal tunics constitute the wall, while in false diverticula, one or more bowel coats give way, permitting the mucosa to herniate outward, forming a pouch that may or may not possess a peritoneal covering. Occasionally, true diverticula, as a result of prolonged distention, become false, in which case weakened or thinned intestinal musculature shows at the base.

Acquired diverticulitis occurs more frequently between the fortieth and the sixtieth year, about twice as often in men as in women, and in different intestinal segments from the stomach to the anus.

Diverticula, rare in the appendix, duodenum and jejunum, occasional in the ileum, common in the cecum and very frequent in the descending colon and sigmoid flexure, also involve the rectum more often than published cases and postmortem statistics indicate.

Acquired diverticula may be single or multiple, small or large, oval or irregular in shape, soft or firm, confined to a single or involve several bowel segments, and may be encountered at any point on the intestinal circumference; but they are more common at the mesenteric border and sites of appendices epiploicae which may conceal them.

Sacs may remain inactive for years, or at any time become infected and inflamed, causing symptoms frequently mistaken for appendicitis, peritonitis, chronic intestinal obstruction, new growth or pelvic abscess. That definite symptoms are absent in almost 50 per cent. of cases is indicated by the frequency with which diverticula are unexpectedly discovered during roentgen-ray search or necropsy.

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* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

The statistics given in Table 1, compiled by Telling, show that in 13,068 necropsies diverticula were discovered eighty-three times, of which thirty-nine were congenital, or true, and forty-four acquired, or false.

TABLE 1.—OCCURRENCE OF DIVERTICULA

Institution	Necropsies	Meckel's Diverticulum	Diverticulum in Small Intestine	Diverticulum in Large Intestine
Dresden City Hospital	8,133	8	1	6
Johns Hopkins Hospital	2,400	15	14	18
Boston City Hospital	1,282	11	1	1
Bender Hygienic Laboratory (22)	953	5	0	3
Total	13,068	39	16	28

For convenience of study, diverticula may be classified into abdominal, cecal, colonic, sigmoidal and rectal, since small intestinal diverticula are rare and seldom cause serious disturbances.

DIVERTICULITIS OF THE CECUM, COLON AND SIGMOID FLEXURE

Etiology.—In some the etiology of acquired diverticulitis is obvious, but in other cases the causation of intestinal pouchings cannot be explained except on the basis of inherited weakness of intestinal musculature that gives way owing to gas or fecal distention.

The etiology of the condition is not fully understood, but it is known that certain factors induce or predispose the patient to diverticulitis. Age, through accompanying disturbed metabolism, weakening of intestinal musculature and chronic constipation complicated by gas and fecal accumulation is an important factor, and sex is evidently a predisposing cause, since the disease occurs more than twice as often in men as in women (Table 2).

TABLE 2.—SYNOPSIS OF AUTHOR'S SEVEN CASES OF ABDOMINAL, COLONIC AND SIGMOID DIVERTICULA

No. Cases	Sex*	Age	Variety and Complications	No. of Diverticula	Location	Result
1	♂	42	Cordlike remains of Meckel's diverticulum (yolk sac)	1	Extended from umbilicus to ileum	Complete recovery
2	♀	52	Large pouchings (diverticula) incident to constipation and fecal impaction	7	Descending colon and sigmoid flexure	Immediate marked improvement
3	♂	49	Diverticulum with vesico-intestinal fistula	20	Rectosigmoidal juncture	Temporary fecal fistula; permanent cure
4	♂	60	Diverticulitis with abscess	6	Sigmoid flexure	Recovery in three weeks
5	♂	47	Diverticulitis with abscess that discharged through the rectum	1	Rectosigmoidal juncture	Death from exhaustion three weeks following operation
6	♀	49	Carcinoma associated with a diverticulum	1	Sigmoid flexure	Recovery; death year later from recurrence
7	♂	63	Diverticulitis of cecum simulating neoplastic tuberculosis	1	Cecum	Fecal fistula and death from exhaustion four weeks later

* In this column ♂ indicates male and ♀ female.

Wasting diseases, cancer, tuberculosis, colitis, etc., with intestinal atrophy favor the formation of diverticula by impairing longitudinal and circular muscle fibers so that they stretch, break or separate, allowing the musoca to herniate through them when pressure is exerted from within; in such cases normal colonic sacculations sometimes become exaggerated and are mistaken for diverticula.

Hemorrhagic infarcts, worms, foreign bodies, obesity (with fat intestinal wall), ulcerative colitis, dilated intestinal glands and other conditions have led to the formation of pouches by perforating, destroying or indenting the mucosa or impairing intestinal musculature.

New growths, constipation and various chronic obstructive lesions responsible for obstipation, coprostasis and gas retention are causative factors in diverticula because of accompanying frequent distention, presence of fecal masses and atrophy or thinning of intestinal tunics.

Diverticula are often encountered at the mesenteric border. Some authorities claim that vessel openings favor herniation, particularly in chronic heart and liver diseases and affections accompanied by mesenteric stagnation, while others attribute the formation of sacs to relaxation of connective tissue surrounding the aperture.

Intestinal pouchings occur more frequently at the site of appendices epiploicae, which undoubtedly are a factor in their production, since such points are vulnerable, because appendices are continuous with the subperitoneal fat. Sacs are often confined to appendices epiploicae and not suspected until they rupture or are accidentally discovered at necropsy.

I have several times artificially produced diverticula here by tightly distending the bowel with air, and I believe that these anatomic structures are the chief predisposing factors of diverticulitis in patients suffering from disease accompanied by chronic gas or fecal distention of the bowel. Diverticula have also followed accidental injuries and operations that weakened the intestinal tunics.

PATHOLOGY

Congenital diverticula are usually found in the small intestine, while acquired diverticula ordinarily involve the cecum, colon and sigmoid flexure, the latter representing the classic type of intestinal pouching.

It is now known that so-called false sacs may possess all the bowel tunics instead of being formed by protrusion of mucous membrane through the muscular coats.

Diverticula vary in size from that of a pea to that of a hen's egg or larger; they number from one to a hundred or more, and they may be confined to a single intestinal segment or scattered over several. Pouches may remain healthy or at any time undergo secondary changes—diverticulitis—that may extend to surrounding tissues—peridiverticulitis.

Active diverticulitis and peridiverticulitis are characterized by marked connective tissue growth (round cell infiltration) and later by fibrosis with contraction and consequent intestinal occlusion. The sac wall becomes thickened and firm, and, as a result of this and deposits of exudates and cicatricial tissue around it, a dense elastic tumor is formed.

Pouches gradually enlarge, usually retaining their peritoneal covering, through gas and fecal accumulation, and often undergo infection that terminates in an abscess that may rupture into the abdomen through the abdominal wall or discharge into the bowel through a fistulous or the original opening connecting the intestinal lumen of the diverticulum.

Occasionally, perforation takes place in noninflamed diverticula that are ulcerated or have thin walls caused by distention or a pointed foreign body. In some instances peridiverticular adhesions angulate, twist, occlude or otherwise distort the intestine, by pulling, strangulating or compressing it, and in such cases

coprostasis and autointoxication are manifest. Frequently, in aggravated cases as a result of perforation or rupture induced by ulceration, fecal and gas retention or emptying of an abscess, a fistula is formed that discharges into the bowel, vagina, bladder or on the surface of the body; more than one perforation has been observed in multiple diverticula.

As a rule, diverticula are located in the lower left quadrant in the region of Poupart's ligament, and the sigmoid flexure, and bulge the skin outward. The abdomen may contain seropurulent fluid or pus; gangrenous areas have been observed in the sac near the juncture of the appendices epiploicae with the intestine.

There is usually thinning of the sac, but this occurs more often at the fundus than at the neck of the diverticulum.

Diverticulitis and peridiverticulitis may be acute, but is more often chronic, and because of the size, form, consistency and macroscopic appearance of the tumor, diverticula are frequently mistaken for carcinomas, towards which they undoubtedly are a predisposing factor. In twenty-seven cases of sigmoid diverticulitis reported by the Mayos, cancer was grafted in the diverticulum in seven and I have twice observed this unique condition.

Microscopic examination of sectioned diverticula walls show them composed of mucosa, submucosa and remnants of muscle fiber, but in some instances only the inner and outer tunics are demonstrable.

SYMPTOMS

Small intestinal sacs (excepting Meckel's) rarely become inflamed, but 25 per cent. of colonic and sigmoidal pouchings undergo secondary changes that produce definite manifestations.

In the beginning, patients suffering from diverticulitis complain of abdominal uneasiness, discomfort and sinking sensations, digestive disturbances, moderate constipation and gas accumulation; but later when inflammation has extended deeply into or through the diverticulum—peridiverticulitis—localized tenderness and cramps, obstinate constipation alone or alternating with diarrhea, the sensation of blocking, fecal impaction and pain in the sigmoid region (left-sided appendicitis) are troublesome symptoms; finally, when the bowel is almost occluded there is marked gas and fecal retention, severe pain, muscular rigidity, nausea and vomiting, obstipation or coprostatic diarrhea, leukocytosis, increased pulse rate, irregular or high temperature—when the diverticulum is infected—and there is mucus, pus or blood in the stools.

When perforation takes place from ulceration, gangrene or rupture, the patient exhibits the usual signs of spreading peritonitis; when an abscess is formed, continuous localized pain and swelling are in evidence until it is drained, ruptures or discharges through the diverticular opening in the bowel. Cystitis is troublesome when there is an opening between the bladder and bowel or sac. Between attacks, symptoms and size of the tumor diminish and the swelling is smaller when the sac is temporarily freed of gas, feces or pus. When there is transposition of the sigmoid flexure, diverticulitis closely simulates appendicitis.

DIAGNOSIS

Diverticulitis and peridiverticulitis mimic and must be differentiated from neoplastic tuberculosis, chronic appendicitis, actinomycosis, intestinal obstruction, carcinoma, chronic sigmoiditis, fecal impaction, encysted foreign bodies, disease of the adnexa, chronic abscess, fistula and vesical tumors.

The majority of sacs do not induce symptoms. A few cause slight disturbance, but in typical cases of diverticulitis and peridiverticulitis, symptoms and signs of the disease are characteristic. With a history of chronic left-sided inflammation, with periodic exacerbations, and an absence of marked cachexia and loss of weight, one is justified in making a diagnosis of diverticulitis when the patient complains of obstipation and diarrhea, localized muscular rigidity, tenderness, pain and gas retention, pus in the urine or feces, a firm, oval tumor palpable in the left inferior abdominal quadrant, and if through the sigmoidoscope the mucosa appears smeared with pus, or an opening is discovered through which pus is discharged and a probe can be introduced into the sac. Owing to the frequency with which fistula connects the bladder and diverticula, cystoscopy and examination of the urine for pus is advisable.

Roentgenographic demonstration is often impossible; but when the lumen of the diverticulum communicates with the bowel, the pouch may sometimes be defined by roentgenograms taken following the administration of barium enemas or meals.

In some cases, microscopic examination of the sectioned specimen is helpful for an exact diagnosis; but this is unnecessary, since removal of the tumor is imperative in any case.

PROGNOSIS

The mortality is nil, and recovery promptly follows the removal or infolding of small or large uninflamed inactive pouches; there is some danger from operations for chronic diverticulitis, and the mortality is rather high in cases in which operation is performed during an acute crisis complicated by marked obstruction, peritonitis or abscess.

TREATMENT

Palliative measures, laxatives and oils—never purgation—hot fomentations, belladonna and morphin, fluid diet and warm high enemas may be prescribed to empty and cleanse the bowel, alleviate pain, relieve colic and muscular rigidity and keep the patient comfortable while being prepared for operation.

Diverticulitis is a surgical condition, since there is no way of destroying the sac except by operation. Numerous small pouches and those of moderate size that have not undergone secondary changes may be buried by coloplication or ligated, excised, and the stump inverted with a purse-string suture or the wound closed, if long, with through and through reinforced by Lembert stitches.

Removal of sacs and resection of the involved bowel is impracticable when diverticula are numerous and widely scattered, and the intestine should be short-circuited. Usually diverticulitis and peridiverticulitis are complicated by infection, and in such cases the abscess is incised, irrigated and drained and the wound only partially closed after binding adhesions have been destroyed. When there is a fistulous opening between the bowel or bladder and diverticulum, after the sac has been dissected free and the edges cauterized, the aperture is closed by infolding sutures

In deplorable cases when excision of the diseased bowel is impracticable, owing to adhesions, relation of the pouch to other organs, and the dangerous condition of the patient, because of infection, perforation or

acute intestinal obstruction, an artificial anus is formed following opening and draining of the abscess.

When feasible, entero-anastomosis, ileoproctostomy or ileosigmoidostomy or intestinal exclusion is substituted for colostomy to relieve obstruction and procure daily soft evacuations without the nuisance of having feces discharged through the side.

Appendicostomy or cecostomy are useful adjuncts in the surgical treatment of chronic diverticulitis, since they provide for through and through colonic irrigation, which heals inflamed and ulcerated areas, frees the bowel of irritants, and facilitates convalescence from autointoxication.

ILLUSTRATIVE CASE

Diverticulitis of the sigmoid flexure complicated by abscess: History.—A man, aged 60, who was emaciated and who had suffered from indigestion, constipation alternating with diarrhea, and sensations of fulness and blocking of gas and feces in the left inguinal region for three or four years, when seen was suffering from pains radiating between the umbilicus and the left lower abdominal quadrant. There was marked constipation. The temperature was 103, and had been preceded by a chill.

Examination revealed rigid abdominal muscles, localized tympanites, marked tenderness and a swelling in the sigmoid region. A sausage shaped tumor could be felt in the recto-vesical pouch with the finger, and sigmoidoscopic inspection disclosed a congested mucosa and apparent narrowing of the intestine. The abdomen was opened. A mass as large as the fist was adherent to the anterior paretes, which proved to be intestine, inflammatory deposits, adhesions and a large pus cavity situated at the other side and behind the intestine. After the bowel had been freed from adhesions and straightened out the abscess was incised, evacuated and cleansed. By careful probing, a small opening connecting the cavity with the sigmoid was located. Perforation had evidently taken place at this point. Examination of the intestine revealed three diverticula the size of a hazelnut, and one the size of a large hen's-egg. The former were pouchings in the upper third of the sigmoid near the mesenteric attachment or appendices epiploicae, and the latter, which proved to be an exaggerated colonic sacculation containing fecoliths, was situated at the side of the sigmoid near its curve and had apparently been caused by constipation, recurring fecal impaction and giving way of the muscular layers from distention through which the mucosa had herniated. The small sacs were empty, but the large diverticulum contained semi-solid feces, concretions and pus which were evacuated by milking the swelling.

Operation.—Small sacs were snipped off with scissors and wounds cauterized and closed by purse-string reinforced by Lembert sutures; the large pouch, which was almost free from adhesions, was ligated, excised at its base, and the stump inverted as in appendectomy, by a double row of infolding sutures. There was no subsequent fecal leaking. The ligatures and remains of the stump were evacuated on the tenth day. The patient was discharged in three weeks and remained well at the end of six months. On the operating table a diagnosis of diverticulitis with perforation, localized peritonitis and abscess was made.

MECKEL'S DIVERTICULUM

These congenital cone-shaped pouches which extend during fetal life from the umbilicus to the ileum near the ileocecal valve are vestigial remains of the omphalic mesenteric duct. Meckel's diverticula are composed of all intestinal coats—true diverticula—variable in size, shape and length, have a small opening connecting them with the bowel, and may be distended with mucus, gas or feces. They are encountered in young persons more often than acquired pouches, and may be strictured or cordlike when almost obliterated.

Meckel's diverticula sometimes undergo secondary changes; but when they do, gangrene, perforation, intestinal obstruction or abscess and fistula with formation of adhesions and kinks may follow. These pouches frequently compress or strangulate a loop of the small intestine.

Symptoms of Meckel's diverticulitis, inflammatory or obstructive, are a sudden onset, alarming from the beginning and difficult to differentiate from those of acute perforation, e. g., appendicitis or intestinal obstruction. In these cases tympanites is marked, pain sharp, abdominal muscles tense, and unless quickly relieved complete intestinal obstruction, fecal vomiting and collapse occur or perforation with localized or spreading peritonitis ensue.

In the treatment, elongated, pedunculated and cordlike diverticula are ligated, excised and the stump inverted as in appendectomy, following liberation of the occluded intestine. Large sacs are removed by elliptic incisions and the intestinal wound closed by through and through sutures reinforced by Lembert or deep infolding sutures. It is sometimes necessary to resect a gangrenous segment of bowel if strangulated.

RECTAL DIVERTICULA

Having defined and fully discussed the etiology, pathology, symptoms, diagnosis and treatment of diverticula, diverticulitis and peridiverticulitis involving the small intestine, colon and sigmoid flexure, it remains for me to consider rectal diverticula which are less common and more troublesome to cure. I have treated nine patients for anorectal diverticulitis, seven men and two women, whose ages ranged from 18 to 60 years (Table 3).

TABLE 3.—SYNOPSIS OF AUTHOR'S NINE CASES OF ANO-RECTAL DIVERTICULA

No.	Sex	Age	Variety and Complication	No. of Diverticula	Location	Result
1	♂	27	Tubelike diverticulum of anal canal	1	Juncture of sphincters	Recovery in ten days
2	♂	45	Suppurative diverticulum	1	Ischiorectal fossa	Recovery in eight weeks
3	♀	49	Diverticulum simulating chronic abscess	1	Rectal ampulla	Complete recovery in six weeks
4	♂	50	Diverticula previously mistaken for cancer	2	Rectal ampulla	Complete recovery in two months
5	♂	50	Rectal pouch (diverticulum) from anterior coccygeal displacement and perforation of the rectum	1	Posterior rectal wall	Prompt recovery
6	♀	60	Anterior rectocele with pouch containing encysted feces	1	Rectovaginal septum	Marked improvement
7	♂	26	Posterior diverticulum due to absence of coccyx and constipation	1	Posterior septum wall	Temporary fecal fistula, complete recovery in six weeks
8	♂	18	Anterior diverticulum (pouching of rectum)	11	Anterior septum wall	Marked improvement in three weeks
9	♂	20	Bifid rectum (diverticulum)	11	Middle rectum	Fecal fistula, two months marked improvement

Telling has reported eleven cases of rectal diverticula, the majority of which from his description were evidently sigmoid sacs. Formerly what is now recognized as the pelvic colon, having a peritoneal covering and mesocolon, was described as the upper third of the rectum; this segment of intestine, which is frequently the site of diverticula, is in reality a continuation of

the sigmoid flexure, and sacs located here should not be diagnosed as rectal.

Etiology.—The average age of patients suffering from rectal pouching is less than in the sigmoidal variety, probably owing to congenital anomalies and because sacs are more frequently multiple in the colon and sigmoid than in the rectum.

Herniation of mucosa through musculature is rare, and rectal diverticula are usually caused by distention and pressure incident to hardened feces or stercoral or other ulcers through which feces or gas escapes and induces sacculation of outer bowel tunics.

Appendices epiploicae are not causative factors in rectal pouchings, and vessel openings play no part in their production. Predisposing causes of anorectal diverticula are congential defects, absence of the coccyx, relaxed rectovaginal septum, pointed foreign bodies, ulcerated areas, abscess, fistula, and constipation with muscular atrophy and recurring coprostasis. I believe that rectal diverticula occur more frequently than is suspected.

Vesico-intestinal fistula is a frequent complication of diverticulitis; in twenty-five of Cripp's sixty-three compiled cases the opening communicated with the rectum, and the probabilities are that in several of these diverticulitis was responsible for the trouble.

The pathology of rectal diverticula is similar to that of diverticula located in the sigmoid flexure, except that sacs in the former place are nearly always associated with or caused by an abscess that periodically discharges into the rectum. Rupture or perforation is not so dangerous, since it occurs below the peritoneal attachment. There is more or less occlusion due to the formation of firm, inflammatory masses, but circular stenoses are rare. Diverticula may contain gas, feces, pus or necrotic tissue, and no doubt are occasionally diagnosed and treated as abscesses.

Diverticula of the small intestine, colon and sigmoid flexure may be multiple and frequently do not cause symptoms, but rectal diverticula are usually single and invariably undergo secondary changes, and the accompanying diverticulitis and peridiverticulitis induce distressing or dangerous manifestations that may simulate those of inflamed colonic sacs.

Symptoms and Diagnosis.—Characteristic symptoms of anorectal diverticula are sensations of burning, weight, fulness, desire to stool, and unrelieved feeling following defecation; but when an abscess has formed, irregular or high temperature, continuous pain, tender swelling, painful defecation, rectal tenesmus, vesical irritation and manifestations of infection are complained of.

A diagnosis is difficult, and diverticula must be differentiated from chronic abscesses, fistula, neoplastic tuberculous tumors, gummas, inflammatory strictures and carcinomas. Occasionally they are detected by digital examination or inspection of the rectum through a proctoscope, which enables one to probe communicating openings and note whether or not rectal mucosa is smeared with pus from the diverticulum. Preoperative diagnosis is seldom made, and occasionally unsuspected sacs are discovered during postmortem examinations.

Treatment.—Palliative measures have no place in the treatment of anorectal diverticula. Diverticulitis at the rectosigmoidal juncture is handled like inflamed sacs involving the colon or sigmoid flexure. Rectal pouches are usually infected and best cured by cutting down on them from within or without the bowel, and after the sac has been incised, excised or curetted and irrigated, a drain is inserted that communicates with the surface. Multiple diverticula are connected by cross incisions and drained unless situated on opposite sides of the rectum, when they are separately operated on.

Occlusion from a circular inflammatory stricture or protuberant mass is usually troublesome, and splitting of the bowel at the obstructed point is necessary since divulsion gives but temporary relief.

Occasionally nothing short of rectal extirpation will permanently relieve the patient; when occlusion is almost complete and obstructive manifestations are acute, and excision of the bowel and sac by the vaginal-perineal, Kraske, or the perineo-abdominal route is not feasible, an artificial anus must be established to relieve obstruction and promote drainage.

Complicating fistulas and abscesses are incised and drained, and vesicorectal sinuses are treated as other rectal fistulas connected with diverticular sacs. Since multiple, small, unchanged pouches so often encountered in the colon and sigmoid flexure are never discovered in the rectum, infolding or excision of the sac and suture of the intestinal wound is rarely indicated in the treatment of anorectal diverticulitis.

ILLUSTRATIVE CASE

Diverticulum of the upper rectum simulating an old abscess cavity: History.—A woman, aged 49, at first complained of marked constipation, recurring fecal impaction, fulness, gradually increasing pressure in the rectum, straining and later of constipation alternating with diarrhea. There was no loss of weight, cachexia or pus, blood or mucus in the stools, or history of previous abscess; two physicians had diagnosed her condition as cancer. Digitally a smooth, firm, ovoid tumor, the size of a hen's egg, projecting from the left posterior wall could be defined, which reached downward to the upper end of the anal canal. Pus could not be expressed from the tumor, and introduction of the finger caused no pain or bleeding. With aid of the proctoscope, reflected light and an angle probe, an opening connecting the rectum with a cavity outside the bowel was detected and a diagnosis of diverticulitis was made.

Treatment.—Following exposure of the rectal opening in the diverticulum with the author's operating speculum, it and the mass were incised, exposing an extrarectal tumor an inch in depth and 3 inches in length. The pouch was curetted, irrigated, dried, treated with phenol (carbolic acid) and packed to arrest bleeding. A drainage incision was then carried from the diverticulum through the anal canal to the perianal skin and packed with gauze. Postoperative treatment was similar to that employed following operations for chronic abscess and fistula. Dressings were continued for six weeks, when the wound healed. The patient was examined and found to be well six years later. Sectional tissue examined showed elements of the rectal tunics and hyperplastic infiltration of the intestinal wall, and dried feces were found in the sac.

ABSTRACT OF DISCUSSION

DR. A. W. GEORGE, Boston: I agree with many things Dr. Gant said, and I disagree with some of his statements. I do not think that diverticulitis, or diverticulosis, ever becomes surgical, with one exception. If a man tries to remove the diverticulum that is found in a case of diverticulitis, he would be at it all the rest of his life. I have never seen a case in which the internist was able to make the diagnosis clinically, or even suggest it, until the roentgen-ray examination. Cases of diverticulitis divide themselves into three distinct classes: (1) Diverticula of the whole large bowel or only of the cecum, commonly of the descending colon, and sometimes of the sigmoid, but never in our experience of the rectum.

(2) The only surgical cases are the obstructive type, this obstruction arising from connective tissue contraction. (3) Where there is marked connective tissue formation, usually of the lower colon, without many diverticula. In 1910 we examined a case which showed a beginning obstruction of the lower portion of the descending colon; in 1915 the bowel was completely obstructed at this point, and a section was removed by Dr. Conant. With the specimen of the resected bowel in your hand, you could not see or feel the diverticula, but as you sectioned the tissue, you could find the diverticula in the connective tissue.

Dr. H. W. Soper, St. Louis: The differential diagnosis between carcinoma and single large chronic diverticulitis is often difficult to make. Mayo has shown that carcinoma is very apt to develop on the basis of diverticulitis. He further points out that the differentiation is often impossible on the operating table. Both may cause partial or complete obstruction of the bowel. I have found one differential point to be of value at times, i. e., bleeding is rare in chronic diverticulitis, while it is common in carcinoma.

Dr. J. Rawson Pennington, Chicago: I endorse what Dr. George said in reference to the roentgen ray. The roentgen ray is of the greatest value in making a diagnosis in some cases of diverticulitis. A diverticulum may have an opening large enough to admit the end of a uterine sound, but not all diverticula have. Neither can all diverticula be seen through the proctoscope; some, because of their minuteness, others, because of their inaccessibility. I have a case under observation now in which the roentgen ray shows more than two dozen diverticula, distributed quite evenly along the colon, between the iliocecal value and the rectum. No other means than that of the roentgen ray could have located them so beautifully.

Dr. F. C. Yeomans, New York: These congenital diverticula are the type that drain themselves and they are frequently discovered accidentally when making a roentgen-ray examination for other conditions. They are usually symptomless. It is only when a stoma becomes occluded that infection and abscess develop which give rise to symptoms. They occur very seldom in the rectum. We do not discover them as a rule by examination with the sigmoidoscope. I recall a case, however, in which it was a question between carcinoma, diverticulitis and sigmoiditis. The mucous membrane was normal but pus was pouring down into the sigmoidoscope through an opening in the bowel wall. It was diagnosed either as abscess or diverticulitis, and it proved to be the latter operation. This condition is very difficult to diagnose. In the infiltrated cases it is impossible to tell before operation and very frequently at operation from the gross pathology whether the tumor is carcinoma or chronic inflammation. In fact, after colostomy on many cases of supposedly inoperable carcinoma, the later subsidence of the tumor proved its inflammatory character and went far to reveal the true pathology.

Dr. S. G. Gant, New York: I called attention to the value of the roentgen ray. If you can diagnose diverticulitis with the roentgen ray, very well, but one should not restrict himself to the roentgen ray alone. I do not know any medicine that will block diverticula, except, possibly bismuth, which would sooner or later cause irritation ending in infection. It is not a question of whether you have one or a dozen diverticula, but if one or more diverticula are infected they should be removed.

Nature of Auras.—Auras should be regarded not as the result of "discharges" of an epileptic nature in some part of the cortex, but as deficiency reactions, like dreams, occurring when there is a "disturbance of consciousness" of a certain type. Their relation to the loss or disturbance of consciousness in epilepsy and migraine is assumed to be the same as that of dreams to drowsy or sleep states; and their content should be regarded as being determined by the same factors that determine the content of dreams and similar hallucinations. Their relation to structural changes may be the same as that of those hallucinations which develop in connection with disease of the organs of special sense or of the nerves connecting them with the brain.—L. B. Alford, *Bull. Mass. Dept. Ment. Dis.* **4**:45 (Oct.) 1920.

FURTHER OBSERVATIONS ON TREATMENT OF SCARLET FEVER WITH IMMUNE HUMAN SERUM *

G. H. WEAVER, M.D.
CHICAGO

In 1918, I reported nineteen cases of scarlet fever which had been treated in Durand Hospital with injections of serum of convalescent patients.[1] Since then we have continued to use the serum in acute cases of scarlet fever, limiting its use to the sickest patients, especially to those in whom toxic symptoms were prominent. The earlier impression that the serum exerts a favorable influence in suitable cases has been confirmed by further use, and we have come to look upon it as a valuable agent in the treatment of scarlet fever. Weisbecker[2] first employed the serum of persons convalescent from scarlet fever in the treatment of acute cases in 1897, and during the six years following, similar observations were made by Huber and Blumenthal,[3] von Leyden,[4] Rumpel,[5] and Scholz.[6] In each instance the quantity of serum introduced was small, and it was injected beneath the skin. The results were not striking nor constant, and the practice fell into disuse.

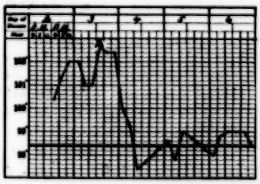

Chart 1.—Course of temperature in scarlet fever, in B. N., a boy, aged 7 years: *A*, 60 c.c. of convalescent serum.

In 1912, Reiss and Jungmann[7] revived this mode of treatment and, in contrast to earlier workers, injected serum in larger doses into the veins. Their results were favorable, as were also subsequent ones, by Koch,[8] and Reiss and Hertz.[9] In 1915, Zingher[10] reported favorably on the treatment of severe cases of scarlet fever by intramuscular injections of whole citrated blood from persons convalescent from the disease. His results appeared to be as good as those following the intravenous use of serum by others.

Kling and Widfelt,[11] in 1918, reported the use of convalescent serum in 237 cases. Of these patients, 17.7 per cent. died, while in a corresponding group of ninety-one severe cases in which no serum was given the mortality was 70 per cent. They believed that severe toxic cases were greatly benefited by the serum.

Before Jan. 1, 1921, we had used convalescent serum in fifty-four cases of scarlet fever, including nineteen previously reported. All the cases were severe. They represented the most severe toxic cases among about 1,200 patients. Thirty-eight were of the toxic type,

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* Read before the Chicago Society of Internal Medicine, May 23, 1921.
* From the Durand Hospital of the John McCormick Institute for Infectious Diseases.

1. Weaver, G. H.: J. Infect. Dis. **22**:211 (March) 1918.
2. Weisbecker: Ztschr. f. klin. Med. **32**:188, 1897.
3. Huber and Blumenthal: Berl. klin. Wchnschr. **34**:671, 1897.
4. Von Leyden: Deutsch. Arch. f. klin. Med. **73**:616, 1902.
5. Rumpel: München. med. Wchnschr. **50**:38, 1903.
6. Scholz: Fortschr. d. Med. **21**:353, 1902.
7. Reiss and Jungmann: Deutsch. Arch. f. klin. Med. **106**:70, 1912.
8. Koch: München. med. Wchnschr. **60**:2611, 1913; Deutsch. med. Wchnschr. **41**:372, 1915.
9. Reiss and Hertz: München. med. Wchnschr. **62**:1177, 1915.
10. Zingher: New York State J. M. **16**:112 (March) 1916.
11. Kling and Widfelt: Hygiea **80**:2 (Jan. 16) 1918.

in six septic complications were most prominent, and in ten prominent toxic symptoms were combined with those arising from septic complications. Two of the patients died, one toxic and one septic. The former was a boy of 15 years, who entered the hospital on the fourth day of illness, with high fever, cyanosis and coma, and died four hours later. The latter was a child of 2½ years who entered the hospital on the fourth day, with greatly enlarged cervical lymph nodes, profuse purulent nasal discharge, extensive ulcerative lesions in the throat and mouth, and high fever. She died on the eighth day. In neither case was any appreciable benefit observed from the serum.

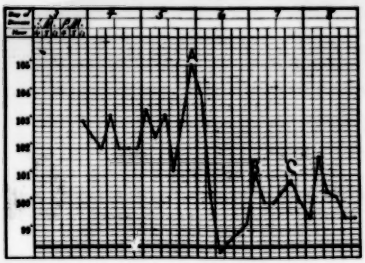


Chart 2.—Course of temperature in scarlet fever, in C. J., a man, aged 20: *A*, 90 c.c. of convalescent serum; *B*, adenitis, arthritis; *C*, otitis media.

TREATMENT AND RESULT

We have usually injected the serum intramuscularly in amounts of from 60 to 90 c.c. Often one half is injected in the muscular mass on the outer side of each thigh. Occasionally it has been injected intravenously, but with no apparent advantage. A second dose after twenty-four hours has been given at times when the first dose was not followed by satisfactory improvement, or when improvement was followed by a tendency to relapse to the previous condition. The beneficial effects from injections of convalescent serum have been described by the various observers with great uniformity. Most prominent is the improvement in the general condition of the patient, which is out of proportion to alteration in the temperature curve. Two or three hours after the injection the temperature begins to decline and continues to do so for from twenty to thirty-six hours. It sometimes reaches normal, but usually remains a little above. Subsequently, there is usually a moderate rise followed by a gradual fall to normal. Occasionally the fever terminates by crisis, never again rising above normal. The earlier in the disease the serum is given, the more pronounced is the effect on the temperature.

Charts 1, 2, 3 and 4 represent the course of the temperature in some cases. They correspond to charts printed by Zingher, and by Kling and Widfelt. Chart 5 represents the composite temperature curve in cases in which serum was given on the second, third and fourth days, and in a series of twenty in which no serum was given. The latter cases were of the same type as treated cases and occurred in the hospital during the three years before serum was used. It will be noted that, when serum was given on the second and third days, the initial drop of temperature was marked with little subsequent rise. When serum was given on the fourth day, the curve does not differ materially from that of the controls. However, many cases in which injection was made on the fourth day showed a pronounced drop in temperature, but this does not appear in the composite curve because of the modifying influence of septic complications in many of the cases. When serum is given in acute cases, with septic complications, an initial fall in temperature with improvement in the general condition usually occurs, but the temperature again rises and the complications run the usual course. If patients receive serum early, the subsequent development of septic complications seem less likely. Following the administration of serum, improvement as regards the toxic symptoms is often very marked. Beginning two or three hours after the injection, restlessness and delirium begin to subside, the pulse improves in quality and is slower, cyanosis disappears, and a patient who had appeared to be on the brink of dissolution in the afternoon when serum was given appears well on the road to recovery the next morning. This effect upon the general condition of the patient is quite constant, even in patients in whom complications progress, and has been emphasized by all who have had experience with the serum.

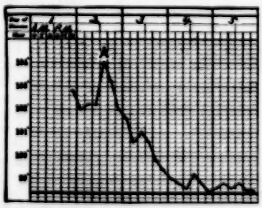


Chart 3.—Course of temperature in scarlet fever in R. K., a girl, aged 8 years: *A*, 62 c.c. of convalescent serum.

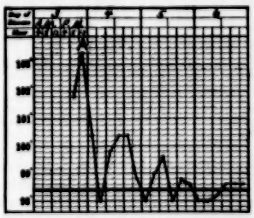


Chart 4.—Course of temperature in scarlet fever, in P. B., a man, aged 21: *A*, 80 c.c. of convalescent serum.

TECHNIC

We have drawn the blood during the fourth or early in the fifth week of the disease. Only those individuals are used as donors of serum who are free from all suspicion of tuberculosis, whose blood gives a negative Wassermann reaction, and who have passed through a typical scarlet fever without septic complications. Kling and Widfelt [11] obtained the best results with blood drawn during the fourth week, but that drawn as late as the seventh week was still active. We have mixed serums from several patients, as those from some patients seem more efficient than those from others. Kling and Widfelt [11] found the serum from persons who had mild attacks as effective as that from persons who had severe cases, but they also observed a variation in the efficiency of serums from different individuals.

The blood is drawn, with aseptic precautions, into a sterile bottle holding 500 c.c., through a needle inserted into a vein at the bend of the elbow, from 200 to 300 c.c. being taken from adults and proportionately

less from the larger of the children. No ill effects from bleedings have been observed. After the serum has separated from the clot, it is drawn off, that from three or four patients mixed, and 0.3 per cent. of tricresol added. Cultures are made from the mixture. If it proves sterile, it is placed in small bottles of 30 c.c. capacity, cultures are again made for sterility, and the bottles are tightly corked and paraffined and kept in a refrigerator until used. Serums have usually been used within a few weeks. In a few instances, serums several months old have been used, but apparently they were less effective than fresher ones. Kling and Widfelt [11] found serum effective up to eight weeks. Zingher [10] says that the blood loses a good part of its therapeutic value on keeping.

COMPLICATIONS

In one patient only was any untoward effect noted from the injection. This patient was a young man who had a very toxic form of the disease, and received serum intramuscularly in the outer side of each thigh. On one side, a painful swelling developed at the site of injection, and a few days later an abscess was incised, and the pus contained an old blood clot. Only hemolyzing streptococci were grown from the pus. It appeared likely that the cocci were in the patient's blood which escaped into the tissues at the time of injection. No disturbance developed in the other thigh; other patients received serum from the same lot without trouble, and remaining bottles of the same mixture

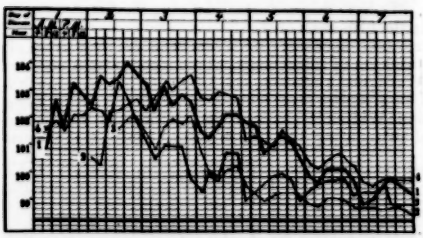


Chart 5.—Composite temperature curves: 1, twenty patients receiving no serum; 2, four patients receiving serum on the second day; 3, ten patients receiving serum on the third day; 4, twenty-five patients receiving serum on the fourth day.

were sterile. Recovery followed draining the abscess. We have observed no favorable influence over septic complications, in this agreeing with other observers.

CONCLUSION

It is well known that the course of scarlet fever is uncertain, some patients suddenly becoming rapidly better under any treatment, and termination by crisis being observed. To one who is familiar with the usual course of this disease, the almost constant fall in temperature, and especially the rapid improvement in the general condition of the patient immediately after the serum is given, is most surprising. Early administration is insisted on by all who have had experience with the serum. In the series of severe cases reported by Kling and Widfelt,[11] 93.7 per cent. of those receiving serum the second day recovered, while with each day's delay the mortality increased until by the sixth day only 50 per cent. recovered. Koch considered convalescent serum an almost absolutely certain weapon during the early stages of the disease.

Intramuscular injections of citrated blood, as recommended by Zingher, may be employed anywhere. When scarlet fever is prevalent, convalescents are usually available, and freshly drawn blood may be injected when facilities for obtaining and preserving serum are absent. This makes the procedure practical in private practice, and in large hospitals for contagious diseases, in which suitable convalescents are always available, it would obviate the necessity of collecting and storing serum. Several advocates of serum treatment for scarlet fever report some value in normal serum, but less than that in serum from convalescents.

In the absence of available convalescent serum, normal blood may be used.

637 South Wood Street.

Clinical Notes, Suggestions, and New Instruments

OPEN SAFETY PIN SUCCESSFULLY REMOVED FROM THE ESOPHAGUS BY PERORAL ENDOSCOPY

HENRY BOYLAN ORTON, M.D., NEWARK, N. J.

April 10, 1921, baby R. P., aged 10 months, swallowed a safety pin. Choking and vomiting followed. The mother tried to dislodge the foreign body by inserting her finger in the child's mouth, but without success. The child slept soundly that night and played as usual the next day. April 12, two days later, roentgenograms, taken by Dr. Bunn, who referred the case to me, showed the pin open in the esophagus, the point being to the left at the level of the aortic arch.

The child was admitted to the hospital, April 12, where, without anesthesia, local or general, esophagoscopy was performed, using a Jackson 7 mm. tube which was passed to the catch of the pin below the level of the clavicle. The point of the pin was located to the left, where it was embedded in the esophageal mucous membrane. Using right angular forceps, the point was disengaged, and at the same time, the tube was rotated around the point. At this stage of the operation, the child stopped breathing. The esophagoscope and forceps were withdrawn, and immediately a 4 mm. bronchoscope was passed through the larynx and oxygen was given, resuscitation following at once. Then the bronchoscope was withdrawn, and the esophagoscope again passed down to the pin; the point was engaged in the tube; the right angular forceps were again used and all were withdrawn together. The complete operation, including resuscitation, required seventeen minutes, the child leaving the hospital the following morning.

671 Broad Street.

RESUSCITATION BY CARDIAC MASSAGE WITH PARTIAL SUCCESS

GEORGE BLACKBURNE, M.D., EAST ORANGE, N. J.

A man, aged 59, was admitted to my service at Saint Michael's Hospital, Newark, N. J., May 25, 1921, with a history of having been struck by an automobile, sustaining, in addition to minor abrasions and contusions, a fracture of the upper third of the left femur, with lateral displacement and overlapping.

Repeated attempts at reduction were made by extension and counterextension in the Balkan frame and the double inclined plane under roentgen-ray control, without success. The patient being in fairly good physical condition, and not

even a fair position of the fragments being attained, it was decided to cut down and plate the bone.

June 10, 1921, rapid reduction and plating were accomplished with a minimum of trauma. Gas-ether anesthesia was administered by an intern, under the personal supervision of the staff anesthetist. During the course of the operation, the patient stopped breathing, and the heart stopped suddenly. Epinephrin was injected into the jugular veins and directly into the heart, and artificial respiration and the pulmotor were used without effect.

During this stage, there was a lapse of about ten minutes, when the upper abdomen was painted with iodin, a quick median incision made, and the heart, much dilated, was felt through the diaphragm. This was forcibly compressed about ten times before any response was elicited. Then there were four or five slow, irregular beats, followed by regular normal contractures. The operation was completed, and the patient returned to his bed in fairly good condition. Thirty minutes later, general muscular twitchings began; the temperature rose to 106 F., and on the following day the patient died without fully recovering consciousness, seventeen hours after operation.

Necropsy revealed cerebral thrombosis.

COMMENT

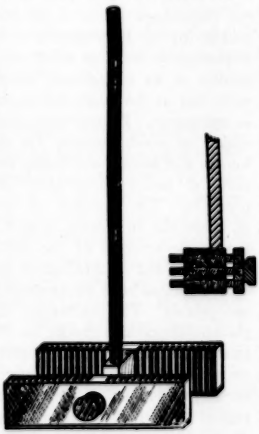
This case is reported because of the partial success attained in resuscitation by cardiac massage, and as a plea for the earlier use of this procedure in such cases. Had there been less delay with other measures in this case, the thrombosis might not have occurred.

93 Hawthorne Avenue.

ADJUSTABLE, MULTIPLE COVER GLASS AND SLIDE HOLDER *

G. W. WAGONER, PHILADELPHIA

The holder consists of two rectangular metal plates, 73 by 17 by 3 mm., grooved vertically with twenty-six slots, 2 mm. in depth. The bottoms of the slots are closed by a narrow strip of metal. These two plates are approximated, one to the other, by means of an adjustable screw and two guide pins passing through a block, inserted in the top of which is the handle. The number of the slots permits the holding of twenty-six standard microscope slides or fifty-two cover slips, if placed back to back.



Adjustable, multiple cover glass and slide holder.

The adjustability of the instrument permits the holding of slides or cover slips whose width is within the range of from 13 to 33 mm. In addition to this feature, the instrument allows the staining of a large number of sections at one time, using thereby a small amount of stain and saving a large amount of time.

Several of these instruments have been in use in the laboratories of the medical school and have been found extremely useful. They may be obtained from either George P. Pilling and Son Company or the Harvey R. Pierce Company, both of Philadelphia.

3641 Locust Street.

* From the University of Pennsylvania School of Medicine.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

COPPER CITRATE (See New and Nonofficial Remedies, 1921, p. 88).

Copper Citrate-PWR.—A brand of copper citrate, N. N. R.
Manufactured by Powers-Weightman-Rosengarten Co., Philadelphia. No U. S. patent or trademark.

MERCURIC BENZOATE (See New and Nonofficial Remedies, 1921, p. 192).

Mercury Benzoate-PWR.—A brand of mercuric benzoate, N. N. R.
Manufactured by Powers-Weightman-Rosengarten Co., Philadelphia. No U. S. patent or trademark.

MERCURIC CYANIDE (See New and Nonofficial Remedies, 1921, p. 183).

Mercury Cyanide-PWR.—A brand of mercuric cyanide, N. N. R.
Manufactured by Powers-Weightman-Rosengarten Co., Philadelphia. No U. S. patent or trademark.

MERCURIC SUCCINIMIDE (See New and Nonofficial Remedies, 1921, p. 196).

Mercury Succinimide-PWR.—A brand of mercuric succinimide, N. N. R.
Manufactured by Powers-Weightman-Rosengarten Co., Philadelphia. No U. S. patent or trademark.

SILVER CITRATE (See New and Nonofficial Remedies, 1921, p. 333).

Silver Citrate-PWR.—A brand of silver citrate, N. N. R.
Manufactured by Powers-Weightman-Rosengarten Co., Philadelphia. No U. S. patent or trademark.

SILVER LACTATE (See New and Nonofficial Remedies, 1921, p. 334).

Silver Lactate-PWR.—A brand of silver lactate, N. N. R.
Manufactured by Powers-Weightman-Rosengarten Co., Philadelphia. No U. S. patent or trademark.

PROCAINE-ABBOTT (See New and Nonofficial Remedies, 1921, p. 34).

The following dosage form has been accepted:

Procaine-Adrenalin Hypodermic Tablets No. 2.—Each contains procaine-Abbott 0.02 Gm. (⅓ grain), adrenalin 0.00004 Gm. (1/1500 grain) and sodium chlorid sufficient so that when the tablet is dissolved in 1 c.c. of water, the resulting solution is isotonic.

Injuriousness of Dust in Industry.—That dusts of various types are intensely harmful to mankind, occasioning in some industries terrible explosions that produce great loss of life and property, and in other trades standing responsible for a highly increased death rate from lung diseases, is emphasized by investigations being conducted by the United States Bureau of Mines. The fact that coal dust has tremendous explosive powers is now demonstrated frequently by the bureau in its own coal mine at Experiment, Pa. A number of severe explosions have occurred in industrial plants using powdered coal as fuel, and it is necessary that care be used in the installation and operation of such plants. Aluminum dust, the dust of various grains and hard rubber dust are also declared to be explosible. The dust of rock containing free silica, found in some metal mines in the West, settling in the lungs of the miners, is responsible for a heavy annual death rate from miners' consumption. In the Butte, Montana, copper mining district, the tubercular death rate of Butte miners is nearly thirteen times as great as that of residents of the state of Michigan. Pulmonary disease due to rock dust, among the miners of the Joplin, Mo., lead and zinc district, affects probably as high as 30 per cent. of the miners employed in certain classes of mines.

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SATURDAY, OCTOBER 29, 1921

THE FAR FLYING FLY

It is today an accepted fact that insects can communicate disease to man not only by serving as mechanical carriers from one person to another but also by becoming intermediate hosts for the microbic agent, which is subsequently transferred farther. Thus, individual cases and even epidemics of typhoid fever and dysentery have frequently been attributed to the carriage of the infective agents by flies. These living forms are further objectionable as pests without special reference to disease when they congregate in numbers in the vicinity of man and animals. For such reasons the dispersion of the various species of flies, like that of the even more objectionable mosquitoes, becomes a matter of importance. It is obviously futile to plan antifly or antimosquito campaigns with reference to small localities if the insects concerned can readily be disseminated from far beyond the boundaries of the places under control. Efforts to eliminate insect breeding places in order to relieve a particular region may be entirely nullified if neighboring breeding grounds are near enough to keep up the supply of the offending insect. Modern progress in medicine has shown again and again how important a knowledge of the habits of insects is for human welfare in general and many public health problems in particular.

How far can flies travel, and what determines the direction of their flight? They have occasionally been reported many miles offshore; but in such instances it may have been the winds rather than their wings that were responsible for the long distance transport. In the course of a series of investigations of insects affecting the health of man and animals, the Bureau of Entomology of the United States Department of Agriculture has sought definite knowledge regarding the questions just raised. Bishopp and Laake [1] have liberated thousands upon thousands of marked flies, notably the common house fly, *Musca domestica*, the screw-worm fly, and the black blow fly, so as to ascertain the direction and speed of their travel. The maximum distance of spread from the point of release as recorded in these tests was, for the several species: *Musca domestica*, 13.1 miles; *Chrysomyia macellaria*, 15.1 miles; *Phormia regina*, 10.9 miles; *Lucilia sericata*, 1.2 miles; *L. caesar*, 3.5 miles; *Synthesiomyia brasiliana*, 0.5 mile; *Sarcophaga* spp., 3 miles; *Ophyra leukostoma*, 7 miles; *O. aenescens*, 4.1 miles. The dispersion was in all directions from the point of liberation.

The government experts have come to the conclusion that under natural conditions the influence of moderate winds on dissemination is not of great importance. In general, the insects appear to go with the wind in greatest numbers; but they are shown to travel against and at right angles with it as well. Among the stimuli inducing dispersion, the desire for food and the desire for places for oviposition appear to be among the strongest. The records show an unexpectedly rapid spread in some cases—frequently eight miles from the point of liberation in less than a single day. These indisputable facts must be reckoned with hereafter. Our next-door neighbors are by no means the only persons with whom we must make an insect-suppressing pact. As Bishopp and Laake point out, the facility with which flies travel many miles emphasizes the importance of the general application of sanitary measures looking toward the suppression of fly breeding.

1. Bishopp, F. C., and Laake, E. W.: Dispersion of Flies by Flight, J. Agric. Res. **21**:729 (Aug. 15) 1921.

THE DIFFERENT PROTEINS OF MILK

As milk is the most prominent source of protein for the physiologic needs of the body, at least at certain periods of its development, it becomes fundamentally important to learn as much as possible regarding the quality of its nitrogenous components in comparison with that of the fluids and tissues for which it serves as nutriment. Furthermore, the secretion of milk, on which so much depends for the promotion of both human and animal well-being, involves the transformation of blood constituents into mammary gland products. The presence of casein, a protein found nowhere else in nature, in milk is a striking evidence that some at least of the milk components are not merely filtered off preformed from the blood. However, milk has been demonstrated to contain more than one protein. The biochemists have long differentiated the phosphoprotein casein, an albumin, and a globulin-like protein in milk; and recently Osborne and Wakeman [1] have announced the discovery of an additional somewhat unique alcohol-soluble protein which they regard as distinctly different from the others, so far as physical properties and amino-acid make-up will permit one to determine.

In view of the fact that immunologic specificity seems to depend on an essentially chemical basis, as has been beautifully demonstrated by Wells and Osborne [2]

1. Osborne, T. B., and Wakeman, A. J.: The Proteins of Cow's Milk, J. Biol. Chem. **33**:7 (Jan.) 1918.
2. Wells, H. G., and Osborne, T. B.: J. Infect. Dis. **12**:341, 1913; **19**:184 (Aug.) 1916.

in recent years, it becomes possible to test the identity or individuality of proteins on the basis of their immunologic behavior. By employing the anaphylaxis reaction as the test procedure, Wells and Osborne [3] have lately demonstrated, in harmony with earlier observations, that biologically casein is quite as distinct from the whey proteins and the serum proteins as it is chemically. Furthermore, the biologic reactions and chemical composition of caseins from different species of animals show close relationships. Wells and Osborne have also clearly shown that the four proteins described for milk are immunologically distinct. This fact, as they say, furnishes another striking illustration of the dependence of immunologic specificity on chemical composition rather than biologic origin. Of these four proteins only one, the globulin, sensitizes to beef serum or causes reactions in animals sensitized to beef serum. This corresponds to the observation of Crowther and Raistrick [4] that lactoglobulin and serum globulin are chemically indistinguishable. Employing entirely different chemical procedures, Woodman [5] of Cambridge University, England, has offered further evidence of the identity of serum globulin and milk globulin. He has also demonstrated lactalbumin and serum albumin to be two distinct proteins. During the period of colostrum production, serum globulin would seem to be transferred quite freely to the mammary secretion. When normal lactation proceeds, the serum globulin, can, to quote Woodman's words, leak, as it were, in extremely small amounts into the milk secretion. The basal nitrogenous constituents of normal milk, namely, casein and lactalbumin, are elaborated by the mammary gland both in the colostral and in the normal lactation periods.

3. Wells, H. G., and Osborne, T. B.: Anaphylaxis Reactions with Purified Proteins from Milk, J. Infect. Dis. **29**: 200 (Aug.) 1921.
4. Crowther and Raistrick: Biochem. J. **10**: 438, 1916.
5. Woodman, H. E.: A Comparative Investigation of the Corresponding Proteins of Cow and Ox Serum, Cow's Colostrum and Cow's Milk by the Method of Protein Racemisation, Biochem. J. **15**: 187, 1921.

MELLON ISSUES BEER REGULATIONS

The postponed regulations for the manufacture of beer, and its sale by druggists on physicians' prescriptions, have been authorized by the Secretary of the Treasury. The original Volstead act prohibited the manufacture and sale of "intoxicating beverages." The question whether the manufacture and sale of whisky, beer and wine for medicinal purposes was contrary to the law was passed on by Hon. A. M. Palmer, Attorney-General of the Wilson administration, who held that it was not the purpose of Congress to prohibit the use of liquor for nonbeverage purposes, and that the Commissioner of Internal Revenue is authorized, under the Volstead act, to issue permits for the manufacture and sale of liquor for medicinal purposes. When the present Congress met, an amendment to the Volstead act was introduced providing that only spirituous and vinous liquors may be prescribed for medicinal purposes, and that all permits to prescribe other liquors should be void. Thus the amendment ruled out beer as a medicine. It also limited a physician to 100 prescription blanks in ninety days. This bill, in slightly different form, passed both houses. The principal difference was in the last section, regarding the right of search and seizure, the so-called Stanley amendment. The Conference Committee proposed a compromise which was accepted by the House. In the last hours of the session before the recess, the Senate refused to agree and the bill was pigeonholed. It has not been brought up for discussion since the reassembling of Congress, so that the original Volstead act is still in force. Mr. Mellon, Secretary of the Treasury, first held that, as both Houses of Congress had voted in favor of prohibiting the use of beer as a medicine, he would not issue regulations authorizing its use. Evidently he has altered his point of view, since he now holds that the Treasury Department "has no right longer to withhold these regulations [i. e., regulations under the original Volstead act] and that in so doing the department is denying to those interested their clear legal right."

It is, of course, possible that these regulations were issued at this time for the purpose of putting pressure on the Senate to adopt the amendment prohibiting beer as a medicine. The new regulations provide that not more than 2½ gallons of beer or 2 quarts of wine may be prescribed at one time for the same person. The effect of these regulations will be to allow practically unlimited prescribing of beer and wine in those states which do not have laws prohibiting the use of wine and beer as medicines. There are only eleven states without such laws. These are Wisconsin, Missouri, California, Connecticut, Massachusetts, New Jersey, New York, Rhode Island, Pennsylvania and part of Louisiana and Maryland. In these states all that will be necessary to secure the maximum of liquor (and all "invalids" will require the maximum dose) is to secure a prescription from a physician.

Self-respecting physicians should and will resent any attempts to prostitute an honorable profession. Physicians who are indifferent as to their professional honor can doubtless reap an abundant harvest, so long as these regulations remain in effect. It is inconceivable, however, that the American people will long tolerate such a travesty.

Errors in Diagnosis of Brain Tumor.—A surprisingly small proportion of cases of brain tumor are diagnosed correctly. There are several reasons: First, the training and point of view of the physician in a hospital for the insane is psychiatric rather than neurologic, and he is preoccupied with the mental symptoms. Second, the most fundamental reason is that, as a rule, ophthalmoscopic examinations of patients presenting organic signs are not made unless brain tumor is definitely suspected. If such examinations were made, a much larger percentage of tumors would be diagnosed, and until they are made as a routine measure, the percentage of cases of brain tumor diagnosed will not be much raised.—M. E. Morse, *Bull. Mass. Dept. Ment. Dis.* **4**:49 (Oct.) 1920.

Current Comment

CANCER WEEK

Next week we shall be in the throes of another drive, this time on cancer. The purpose of Cancer Week is to acquaint the lay public with the essential facts concerning the disease, to encourage early diagnosis and treatment, and to reenlist the interest of the medical profession in controlling the disease. A large majority of fatalities in cancer have resulted from delay in treatment due to lack of recognition of the disease in its early stages. The responsibility rests on the public for delay in securing competent medical attention, and on the medical profession for delay in diagnosis and procrastination in treatment. The evidence accumulated by Dr. Bloodgood, as shown in his analysis of "Cancer of the Tongue" in this issue of THE JOURNAL, leads to the conclusion that the chief hope of reducing the number of deaths from cancer lies in educational propaganda. The campaign of education should be steady and continuous, and not a "flash in the pan."

STANDARDS IN JOURNALISM

Willard Grosvenor Bleyer, director of the University of Wisconsin school of journalism, in a recent address before the Joseph Medill School of Journalism discussed the need of elevating the standards of the journalistic profession, especially as it applies to newspapers. As examples for comparison, the speaker described briefly the development of the American Bar Association, and then in greater detail, the evolution of the present systematized training of physicians. He referred especially to the organization of the American Medical Association, its code of ethics, THE JOURNAL, and other powers for elevating the art and science of medicine. Professor Bleyer expressed the hope that every reporter and journalistic student had read "Nostrums and Quackery" for its excellent account of the way in which blood money is wrung from poor victims by nostrum exploiters. The Council on Medical Education, too, was praised for protecting prospective medical students against inferior schools. Finally, Mr. Bleyer asked: "Is journalism any less important than the law and medicine? They treat the members. We help or hurt the whole body politic. . . . Journalism," he said, "is the only great profession unorganized." And the remedy, he believes, lies in the formation of a strong body, which, like the American Bar Association and the American Medical Association, will be possessed of the influence to require reporters to have the fundamental training. A bane of newspaper work has been that men of high school education, who have no background of history, economics or the classics, are the ones purveying the news of today. Until the standards of journalistic training are raised, and until the ethics of the profession become a means of protecting scrupulously the body politic, it will continue to be possible for shyster journalists to fatten themselves on deluded dollars from "patent medicine" advertisements, and the public to look askance at the reliability of the press in general. A timely discussion is this of Professor Bleyer. His criticism is not only fiercely destructive of the malignant growths which are attacking the life of modern newspaper journalism, but constructive in the suggestion of a systematically outlined and wholesome remedy.

THE RECORDING AND REPRODUCTION OF CARDIAC AND RESPIRATORY SOUNDS

At the Bureau of Standards in Washington, Hunt and Myres [1] recently succeeded in making permanent records of cardiac and respiratory sounds and in reproducing them by means of a telegraphone. The records are said to have been made audible throughout a room by means of audion amplifiers and a loud-speaking telephone. The method used is thus described by the experimenters:

> A carbon telephone transmitter of ordinary type with rubber adapter substituted for the mouthpiece was used for the stethoscope. The currents from the telephone transmitter were amplified by means of a five-stage audion amplifier, which was connected to the recording element of a steel wire telegraphone. The magnetic records of the cardiac and respiratory sounds thus obtained were made audible by connecting telephone receivers to the telegraphone in the usual manner. The telegraphone currents were also amplified by means of a three-stage audion amplifier which was connected to a loud speaking telephone. In this way the sounds were made audible throughout the room.

Naturally, a method that will obtain permanent records of cardiac and respiratory sounds and that will make it possible to reproduce them offers most interesting possibilities of study of normal and abnormal conditions as well as of instruction to students, and further developments will be awaited with much interest.

EXTERMINATING YELLOW FEVER

In his presidential address before the American Medical Association in 1909, General Gorgas said: "The advances in tropical sanitation during the last fifteen years have shown that the white man can live in the tropics and enjoy as good health as he would have if living in the temperate zone. I dare to predict that after the lapse of a period equal to that which now separates us from the Norman conquest of England, localities in the tropics will be the center of as powerful and as cultured a white civilization as any that will then exist within the temperate zones." Evidently this prediction is to be fulfilled in much less time than General Gorgas anticipated. The seventh annual report of the International Health Board, just issued, shows that yellow fever has been narrowed down to limited and definitely recognized areas and is now confined to the east coast of Brazil, Ecuador, Peru, Guatemala, Honduras, Nicaragua, Salvador, Mexico and West Africa. An extensive battle ground, truly, yet how small compared to the former range of "Yellow Jack" from Edinburgh on the north to the Cape of Good Hope on the south. It is an achievement to have established definite boundaries for this disease: a still more hopeful feature is the steady shrinking of the infected area. The city of Guayaquil, Ecuador, has been for seventy-five years a breeding place for yellow fever. Modern

1. Hunt, F. L., and Myres, M. J.: Experiments on the Recording and Reproduction of Cardiac and Respiratory Sounds, Science 54: 359 (Oct. 14) 1921.

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control measures were inaugurated in Guayaquil in November, 1918. As a result, Guayaquil has not had a case of yellow fever for more than two years. The quarantine was raised, Dec. 1, 1920. Mexico, Brazil and West Africa present great natural difficulties which will require time to overcome. But the infected regions are shrinking year by year. At the present rate of progress, it is quite possible that the great changes in the tropics, predicted by General Gorgas, may take place in the next hundred years rather than the next thousand.

CANCER PHOBIA

An inevitable accompaniment of directing special attention to any disease is to arouse in a certain number of persons phobias almost as terrifying as the diseases feared. To warn the public that "moles, excrescences, fistulas and warts" "are the first signs of cancer" is to erect a specter capable of shattering even a normal mentality. To say that "symptoms of indigestion" are "signs of cancer" is so small a part of the whole truth that it is better left unsaid. Carcinoma is in the beginning a local disease. It is definitely known that irritation of tissues favors its production. There has also been accumulated evidence as to the earliest signs by which malignant growths manifest themselves. It is well to give the public such facts as these, to advise early consultation with the family physician, and to point out that we have thus far but one sure method of treatment, and that is complete removal of the dangerous growth. The condition itself is sufficiently serious and needs no elaboration as to its terrifying aspects. Give the public all the facts—but facts only.

VIRCHOW CENTENARY

On October 13 occurred the centenary of the birth of Rudolph Virchow, the founder of cellular pathology, noted as pathologist, educator, investigator and statesman. At the age of 26 he founded the *"Archiv für pathologische Anatomie,"* popularly known as *"Virchow's Archiv."* As indicated by Garrison, his first paper in this periodical advanced the idea that an unproved hypothesis of any kind is a very leaky bottom for practical medicine to sail or trade upon, and he scouted the notion that any one man is infallible in respect of judgment or knowledge. He was the annihilator of humoral pathology, replacing it with the cellular concept. But besides these statements of general principles he was the first to observe and define leukocytosis; he separated pyemia from septicemia; he created the doctrine of embolism; he pointed out the true relationship between lupus and tuberculosis; he gave the name "arthritis deformans" to rheumatic gout; he discovered the neuroglia and the lymphatic sheaths of the cerebral arteries, and he made numerous contributions to anthropology, medical history and general literature. With all this, he found time to serve in the Prussian lower house and in the Reichstag. In analyzing his work, the *British Medical Journal* considers his most characteristic service to scientific medicine his foundation of the Zentralblatt and Jahresbericht ideas. The collection of medical material now available, the British journal suggests—the mere presentation of facts discovered through objective research since the time of Virchow—represents a stupendous accumulation, actually a plethora. Among the greatest men of medical science of the nineteenth century, Virchow was a peer: and, withal, a very human being.

SHEPPARD-TOWNER BILL IN THE HOUSE

Dispatches from Washington indicate that the Sheppard-Towner Bill (S. 1039) will soon come up for consideration in the House of Representatives. It has already passed the Senate. The House Committee on Interstate and Foreign Commerce, to which the bill was referred, has been asked to report on it as soon as possible. As has been repeatedly stated in previous issues, THE JOURNAL is opposed to this measure because (1) the principle of federal state aid as a means of financing public health work is an unsound financial policy; (2) public health work, except those activities which are clearly national in character, is essentially a function of the state and local government and should be supported out of state and local funds; (3) there are no reliable statistics by which it can be proved that the United States stands seventeenth in maternal death rate as the advocates of the measure claim; (4) the measures provided in the bill will not afford an effective remedy for existing conditions, and (5) and most important, if the federal government intends to inaugurate activities for the care of maternity and infancy or for any other public health measure, such work should be delegated to the United States Public Health Service and not to a bureau of the Department of Labor. The Hon. Samuel E. Winslow of Massachusetts is chairman of the committee to which the bill has been referred and his committee is interested in knowing how the physicians of the nation stand on the measure. Physicians who are interested should write to Mr. Winslow, expressing their views on this question. If the medical profession does not want to see this bill passed, now is the time to say so.

NEW NARCOTIC DRUG INSTRUCTIONS

In another column appears a summary of the new instructions from the Commissioner of Internal Revenue to the Narcotic Agents in charge of the enforcement of the Harrison [1] law. Physicians holding permits to prescribe narcotic drugs should read these instructions carefully, since they contain several new directions on the use of narcotic drugs in the treatment of acute and incurable diseases and of drug addicts. The regulations are more liberal than those heretofore issued. They place the responsibility on the physician where it rightly belongs and base the question of violation of the law on his good faith. They should be complied with strictly, in every case, since their observance is a matter of professional honor. If in doubt, physicians should ask for a ruling from the Internal Revenue officer of their district, giving all the facts and complying with the regulations until the ruling is received.

1. See General News, page 1431, this issue.

Mental Hygiene.—In the broadest sense mental hygiene touches everything that affects the mind of man—it is as broad as life itself; but specifically it means measures for the mental health of the individual.—M. C. Jarrett.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Appointments to State Board of Medical Examiners.—The governor has reappointed Drs. Robert A. Campbell, William R. Molony, Los Angeles; Percy T. Phillips, Santa Cruz; Charles B. Pinkham, San Francisco, and Harry E. Alderson, San Francisco, as members of the board for four-year terms.

Medical Meeting.—The Southern California Medical Association will meet, November 4-5, at Los Angeles, under the presidency of Dr. Charles L. Bennett. Dr. Alonzo Englebert Taylor of the Rockefeller Foundation, former professor of physiologic chemistry, University of Pennsylvania, Philadelphia, and Dr. Herbert McLean Evans, Berkeley, will address the meeting.

Hospital News.—The new Sutter Hospital, Sacramento, will be erected at a cost of $500,000. The building will have a capacity of 150 beds and will be equipped with all modern improvements.——An appropriation of $12,000 for road improvements and the new bath house at the U. S. Public Health Service Hospital, Arrowhead Springs, has been received from Washington, D. C. The number of patients is to be doubled during the coming year, and cottages for the medical staff are being erected in the grounds.

COLORADO

Medical Meeting.—A special meeting of the Medical Society of the City and County of Denver was held, October 10, under the auspices of the American Society for the Control of Cancer. Papers were read by: Drs. James C. Masson, Mayo Clinic, Rochester, Minn.; Leonard Freeman, Josiah N. Hall and Casper F. Hegner, Denver. A film which has been prepared to be exhibited before public audiences was shown for the first time.

Denver Tuberculosis Society.—The society has issued a statement to the effect that after weighing and measuring the children in nineteen schools in Denver, only 6 per cent. of the children were normal in weight for their height and age. Underweight is due to malnutrition, which is abnormal and should be treated as such. The causes of malnutrition are: physical defects, lack of home control, overfatigue, insufficient food and sleep, tuberculosis, impaired mentality and lack of power of concentration and attention.

CONNECTICUT

Personal.—Dr. Frederick P. Lee, New Britain, former health officer of the port of New York, has been elected health superintendent to succeed Dr. Jesse R. Harris, resigned.

FLORIDA

Public Health Meeting.—The annual convention of the Florida Public Health Association was held, October 4-5, at Jacksonville, under the auspices of the U. S. Public Health Service. Addresses were given by Dr. William W. Macdonnel, city health officer, Dr. Raymond T. Turck, state health officer and Rabbi Israel L. Kaplan, president of the association. Conservation of childhood resistance to disease, health habits and diet of children, tuberculosis and hygiene teaching in the schools were discussed during the conference.

ILLINOIS

Personal.—The governor has appointed Dr. Samuel A. Graham, Clinton, as district health superintendent in Health District No. 15, effective, October 17.

INDIANA

Personal.—Dr. Greene L. Rea, Fort Wayne, head of the city venereal clinic, has resigned to take charge of the venereal clinic in Charlotte, N. C., effective, November 1.

Hospital News.—A hospital for the exclusive treatment of negroes will be established by Drs. James R. and John W. Norrel, J. T. Johnson and Samuel H. J. David, at Indianapolis, at a cost of about $10,000.

IOWA

Physicians Plan Cruise.—Several Iowa physicians will make a midwinter cruise to the Mediterranean, Orient and Holy Land, leaving, Feb. 4, 1922, under the direction of Dr. James W. Cokenower, Des Moines. Physicians from other states who would like to join them should communicate with Dr. Cokenower.

Personal.—Dr. Mark Frederick Boyd, former Iowa state epidemiologist, has been appointed to a position on the international health foundation, and will sail in January, 1922, for Brazil to serve on the board for a period of three years. Dr. Boyd has just returned from doing research work in Galveston, Texas.

LOUISIANA

Larger Leper Colony Needed.—The New Orleans Association of Commerce has addressed resolutions to Louisiana senators in Washington, D. C., urging an immediate appropriation to enlarge the federal home for lepers at Carrville, so as to care for nearly 100 cases on the waiting list.

Hospital News.—A new hospital exclusively for treatment of diseases of the eye, ear, nose and throat will be erected in New Orleans at a cost of approximately $350,000.——The Franciscan Sisters have purchased a site for the erection of a new hospital at Baton Rouge, which will be constructed at a cost of $75,000.

MARYLAND

Health Tokens for Pupils.—The Public Athletic League is making systematic medical examination or all pupils in public schools in the state. When examination reveals no defects, the child is given a "health token medal," to signify perfect physical condition. If remediable defects are discovered, the child receives a green button which certifies the physician's permission to take part in school athletics. Nurses are sent to the homes of the pupils to make arrangements with the parents to remedy any defects in the children.

Annual Meeting of Therapists.—The fifth annual meeting of the National Society for the Promotion of Occupational Therapy was held in Baltimore, October 20-22. The address of welcome was read by Dr. John S. Fulton. Meetings were held at the Southern Hotel on the mornings of the twentieth, twenty-first and twenty-second, at which prominent physicians and others interested in occupational therapy gave interesting and instructive talks on the subject. On the afternoon of the twenty-first, an important meeting was held at the Henry Phipps Psychiatric Clinic, Johns Hopkins Hospital, and was opened by Dr. Adolf Meyer, the physician-in-chief. On the afternoon of the twenty-second, the members of the society were entertained at the Sheppard and Enoch Pratt Hospital, Towson, Dr. Ross McC. Chapman, superintendent.

MASSACHUSETTS

Institute for Physicians.—More than 2,000 physicians attended the Institute for Physicians of the Boston Tuberculosis Association, held October 26-27, at the Massachusetts General Hospital, Boston.

Personal.—Dr. Charles H. Hunt, physician to the New Bedford House of Correction for the last twenty-five years, has resigned, effective, September 1, and will be succeeded by Dr. Frank Matthewson.

School for Bodily Mechanics.—The Brookline board of health has announced a plan to establish a school for bodily mechanics, under the direction of Drs. Francis P. Denny, Fritz Talbot and Augusta G. Williams. Dr. Armin Klein, orthopedic department, Massachusetts General Hospital, will be in full charge of the work.

Public Health Conferences.—The Massachusetts department of health is conducting a series of five weekly round table conferences at the state house, the purpose of which is to afford citizens of the state an opportunity to familiarize themselves with the principles and scope of the public health movement and its developments.

Personal.—Dr. John Kolmer, Philadelphia, read a paper entitled "The Present Status of the Wassermann Reaction with Special Reference to the Clinical Value of a Standardized Technic" at the meeting of the Springfield Academy of Medicine, October 11.——Dr. John W. Bartol, president of the Massachusetts Medical Society, gave an address at the Worcester District Medical Society, held October 12.

War Heroes Honored.—As a permanent tribute to the memory of Howard W. Beal, Major, M. C., U. S. Army; William H. Buffum, Lieut., M. C., U. S. Navy; William W. Walcott, Capt., M. C., U. S. Army; Harrison B. Webster, Major, M C., U S. Army; Ernest Victor Keller, Major, M. C., U. S. Army, and Walter J. Dodd, Lieut., R. A. M. C., who were killed in the World War, the Massachusetts General Hospital's House Pupil's Alumni Association erected a large slate tablet bearing their names with a gilded star in front of each one, in the Treadwell Library of the hospital, which was unveiled, October 18, by Dr. Samuel J. Mixter, on the occasion of the seventy-fifth anniversary of Ether Day and the centennial of the opening of the Massachusetts General Hospital.

Hospitals Dedicate Circle.—Representatives of the Harvard Medical School, Mayor Peters, State Treasurer James Jackson, representing the commonwealth, and officers and nurses of the hospital dedicated the circle in front of the Harvard Medical School, October 18, in memory of Oscar C. Tugo, Base Hospital No. 5, who is believed to be the first enlisted man in the U. S. Army to be killed by the Germans. The ceremony was conducted by Rev. Malcolm E. Peabody, chaplain of Base Hospital No. 5. Wreaths were placed on the marker, taps were sounded, and the ceremony concluded with the playing of "The Star-Spangled Banner." The principal address was delivered by Surg. Gen. Merritte W. Ireland, who stated that the War Department will honor the memory of Oscar C. Tugo by naming for him a building at the Medical Field Service School, Carlisle Barracks, Pa.

Maternity Study.—For several years, measures for maternity aid have been under consideration by the legislature of Massachusetts. Some measures proposed financial aid; others attempted to deal with the problem as a matter of public health. The medical profession, as represented by the joint committee on legislation of the Massachusetts Medical Society and Massachusetts Homeopathic Medical Society, and the council of the Massachusetts Medical Society and various local societies have in general opposed any legislation for maternity aid. This subject has been referred to the next session of the legislature, which convenes next January. In February, 1921, the council of the Massachusetts Medical Society appointed a special committee of seven to study any measures for maternity and infant welfare. This committee added to its membership two representatives of the Massachusetts Homeopathic Medical Society, and on May 31 presented a unanimous report to the council pointing out that the published statistics gave a wrong impression because many so-called maternal deaths were not deaths at the time of confinement but were deaths included under the term puerperal state, and that therefore inferences drawn from the statistics were misleading. The committee believes, further, that comparative statistics, such as have been published in the professional and lay press, are not reliable because of changes and improvements in classification. As constructive suggestions, the committee recommended the development of obstetric wards, obstetric services and prenatal clinics in connection with existing hospitals and institutions as far as local conditions permitted. Adequate hospital records and greater accuracy in the filing of death certificates were also urged, as well as careful supervision of the licensing of lying-in hospitals. It has now been proposed that a letter of inquiry be sent to every physician in the state reporting a maternal death. It will be sent entirely impersonally and in no spirit of criticism. The replies will be confidential so far as names or any means of identification are concerned. The committee hopes to be able to point out ways in which the task of the physician, so far as it relates to obstetric practice, may be made easier and in which mortality and morbidity of mothers and infants may be lessened.

MICHIGAN

Hospital News.—The cornerstone of the new Saginaw General Hospital has been laid. The building will be erected at a cost of $875,000, and will be equipped with all modern improvements.——Ground has been broken for the new Blucher Memorial and Research Hospital, to be erected at L'Anse at a cost of approximately $150,000.

MINNESOTA

Medical Inspectors for Diphtheria.—The health commissioner of Minneapolis has appointed Drs. Henry J. Welles and Glen R. Matchen, senior medical inspectors of the health department, on the active list to answer calls and assist private physicians in making diagnoses of diphtheria suspect cases. With more than 150 cases of diphtheria in the city, the board of public welfare considered this action necessary to prevent the further spread of the disease.

Society for Experimental Biology and Medicine.—A branch of the society organized in Minnesota held its first meeting, October 12, at the University of Minnesota, Minneapolis. Dr. Arthur D. Hirschfelder was elected executive secretary. There is only one other branch of the society. Dr. Edward Browning Meigs, U. S. Department of Agriculture, Washington, D. C., gave an address.

State Sanitary Conference.—The state board of health announces that its annual state sanitary conference will be held, November 3-5, at the University of Minnesota, Minneapolis. The assembling of county health officers is authorized by Regulation 10 of the state board of health. Public health agencies participating in the conference are: U. S. Public Health Service, the American Red Cross, the University of Minnesota, the state board of health, the state board of control, the state advisory commission for tuberculosis, the state dairy and food department, the state live stock sanitary board, the Minnesota Public Health Association and the American Waterworks Association.

MISSOURI

Personal.—The bipartisan state eleemosynary board, Jefferson City, elected Dr. Ethan E. Brunner, superintendent of the Farmington Hospital, to succeed Dr. Jesse L. Eaton.——Dr. Moses H. Topping, Flat River, has been appointed superintendent of the colony for the feebleminded, Marshall.

NEW JERSEY

Hospital News.—Several new buildings will be added to the State Hospital, Morris Plains, at a cost of 163,117.——The contract has been awarded for the erection of the new maternity building at the Olean General Hospital, to be constructed at a cost of $93,900.

Organization of New Society.—At the meeting held, October 14, at the Newark Academy of Medicine, a new association, to be known as the Professional Guild of Essex County, was organized with the object of amalgamating the professions of medicine, dentistry, pharmacy and nursing, for their scientific and material advancement, and to conduct an educational campaign for the public in health matters. The society will meet semiannually. The following officers were elected for the ensuing year: Dr. Frank W. Pinneo, president; Dr. David A. Kraker, treasurer, and Dr. Ambrose F. Dowd, secretary.

NEW YORK

Addition to Syracuse Hospital.—Work has been begun on an extension to the General Hospital of Syracuse which calls for the expenditure of $40,000. A third story is being placed on the east wing of the building which will provide modern maternity rooms and a nursery to accommodate fifteen babies. A comprehensive plan for expansion in the way of professional services is being worked out by the medical staff of the hospital.

Medical Society's Centennial.—The one hundredth anniversary of the Erie County Medical Association was held, October 17, at Buffalo. Dr. John B. Deaver, professor of surgery, University of Pennsylvania School of Medicine, Philadelphia, gave an address on "Surgical Clinics," and Dr. Charles F. Hoover, professor of medicine, Western Reserve University, Cleveland, on "Medical Clinics." Dr. Irving W. Potter, Buffalo, spoke on "Demonstrations of Version."

Personal.—Dr. Réné Ledoux Lebard of Paris, France, addressed the historical section of the New York Academy of Medicine, October 13. The subject of his presentation was "Color Print Illustration of Medical Books up to the Year 1800"——Dr. George Herbert Ramsey of Olean has been appointed deputy commissioner of health in Michigan.——Sir Harold J. Stiles of Edinburgh, Scotland, delivered the Wesley M. Carpenter Lecture before the New York Academy of Medicine on the evening of October 20. His subject was "Surgical Tuberculosis in Children and Its Relation to the Milk Problem."——Dr. Frank F. Williams of Canton was recently elected president of the St. Lawrence County Anti-Tuberculosis Society.

New York City

New York Polyclinic to Be Reopened.—The New York Polyclinic Hospital will be vacated by the United States government and reopened in 1922, with enlarged facilities, as a graduate medical school. It is planned to give instruction in the various departments of medicine and surgery.

Movement to Introduce Physiotherapy.—A meeting of the Medical Association of the Greater City of New York was held, October 17, at the New York Academy of Medicine. A symposium on "Adapting to Civilian Practice the Newer Physical Treatment Methods Proved Out in the War Hospitals" was held.

OHIO

Medical Meeting.—The annual meeting of the Northwestern Ohio District Medical Association was held, October 7, at the Toledo Academy of Medicine. Drs. John F. Erdman and Herman Mosenthal, New York, gave addresses. Dr. Charles H. Clark, Lima, was elected president and Dr. W. C. Pay, Bellefontaine, vice president. Lima was chosen as the meeting place for the next annual session.

Personal.—Dr. Charles H. Clark, Lima, was elected president of the Northwestern Ohio District Medical Association at the annual meeting, held in Toledo, recently.——Dr. John H. H. Upham, professor of medicine, Ohio State University College of Medicine, Columbus, and former president of the Ohio State Medical Association, gave an address, October 18, at Lima, at the meeting for graduate medical study, under the auspices of the medical education committee of the Ohio State Medical Association.——Dr. Harold Newton Cole, Cleveland, gave an address on "The Treatment of Malignancy in Dermatology" at the meeting of the Ohio County Medical Society, October 7, at Wheeling, W. Va.

PENNSYLVANIA

Personal.—At the centennial celebration of McGill University, Montreal, Canada, the honorary degree of doctor of laws was conferred on Dr. Robert Tait McKenzie, professor of physiology, therapeutics and physical education, University of Pennsylvania, Philadelphia.——Dr. Lawrence Litchfield, Pittsburgh, president elect of the Medical Society of the State of Pennsylvania, read a paper "The Patient Himself," at the meeting of the Fayette County Medical Society, October 13, at Pittsburgh.——Dr. Arthur D. Cowdrick, Clearfield, has been appointed county health officer by the state department of health to succeed Dr. John W. Gordon, who resigned recently. ——Dr. Harry Britton, Reading, has been appointed medical examiner for Cornell University, Ithaca, N. Y.

Philadelphia

Meeting of American Academy of Ophthalmology and Otolaryngology.—The annual meeting of the American Academy of Ophthalmology and Otolaryngology was held during the week of October 22, at the Bellevue Stratford Hotel. The following officers were elected: Dr. Walter R. Parker, Detroit, president; Dr. Ross H. Skillern, Philadelphia, vice president; Dr. W. L. Benedict, Minnesota, vice president; Dr. John J. Shea, Tenn., vice president; Dr. S. H. Large, Cleveland, treasurer, and Luther C. Peter, Philadelphia, sceretary.

VIRGINIA

State Medical Meeting.—At the fifty-second annual meeting of the Medical Society of Virginia, held, October 18-21, at Lynchburg, under the presidency of Dr. Alfred L. Gray, Richmond, the following officers were elected for the ensuing year: president, Dr. Edward C. S. Taliaferro, Norfolk; first vice president, Dr. John Staige Davis, University; second vice president, Dr. Clarence Porter Jones, Newport News; third vice president, Dr. J. Beverly DeShazo, Ridgeway, and secretary-treasurer, Mr. G. H. Winfrey, Richmond (reelected). By a majority of two to one the society endorsed the majority report for the establishment of the Medical Department of the University of Virginia in Richmond.

WASHINGTON

Hospital News.—A nurses' home will be erected in connection with the Sacred Heart Hospital, Spokane, at a cost of $240,000.——The Siloam Sanatorium, Soap Lake, consisting of 140 rooms, has been entirely destroyed by fire.——Mount Carmel Hospital, Colville, has been remodeled.——A hospital will be constructed at Okonogan in cottage style.——The new Detention Hospital, Tacoma, will accommodate thirty patients. It was originally the city hall annex.

Personal.—Dr. Frederick W. McKnight, Cle Elum, has been appointed health officer, to succeed Dr. Charles F. Stafford, resigned.——Dr. Perley R. Brenton, health officer of Tacoma, has resigned and will be succeeded by Dr. Joseph P. Kane, Tacoma.——Dr. William H. Morse, Bureau of War Risk Insurance, Seattle, has been transferred to Spokane to the U. S. Public Health Service to succeeded Dr. Frederick B. Nather.——Dr. Herman S. Judd, U. S. Public Health Service, Seattle, has been assigned to the Cushman Hospital, Tacoma, to succeed Major William Elder, resigned.

WISCONSIN

Personal.—Dr. Hugo P. Siekert was elected president of the Milwaukee Physicians Association at the annual meeting. ——Dr. Harry M. Guilford, former Minneapolis health commissioner, has been appointed to the bureau of communicable diseases, Wisconsin State Board of Health, effective, October 12.

License Lost or Stolen.—A report states that Dr. Francis R. Janney, Milwaukee, has had his license to practice medicine in Wisconsin stolen; at least, it has disappeared from his office. The license was dated July 1, 1920, and was No. 5258. State board secretaries are advised to be on the lookout for it.

CANADA

Hospital News.—Dr. E. L. Proctor, director of the Freeport Tuberculosis Sanatorium, Kitchener, Ont., resigned his position, October 17. Dr. Proctor has been in charge since the hospital was opened by the army medical board shortly after the beginning of the war.——Dr. Kenneth Maitland, Brighton, Ont., and Dr. Homer McCuaig, Cornwall, Ont., have been recently appointed to the medical staff of the Rockwood Hospital, Kingston, Ont. Both are graduates of Queens University, and for some time have been on clinics at this hospital.

University News.—Dr. C. W. Service, Canadian medical missionary, at present in China organizing a medical and dental college at Chengtu, has made an appeal to the people of Canada through Dr. Walter Willmot, Toronto, to subscribe funds to aid him in this work.——A proposal was submitted to the Baptist convention at St. Thomas last Friday to offer a free site to McMaster University, Toronto, if it would locate in Hamilton. It was proposed to give a free site at Tyrell's Point, which is about ten minutes' motor ride distant from the center of the city of Hamilton. About 70 per cent. of the students now attending McMaster University come from within a radius of 40 miles of Hamilton.

Public Health News.—At a recent meeting of the executive committee of the Canadian Public Health Association, held recently in Toronto, a resolution was passed urging the government at Ottawa to appoint a dominion minister of health. Among those present were Dr. Henry E. Young, Victoria, B. C.; A. Grant Fleming, Toronto; Charles Hastings, Toronto; Gordon Bates, Toronto; William J. Bell, Toronto; Robert R. McClenahan, Toronto; John W. S. McCullough, Toronto, and John G. Fitzgerald, Toronto.—— John W. S. McCullough, M.D., chief officer of health for Ontario, has informed the Lindsay Council that the matter of a laboratory for Lindsay will be brought to the minister's attention when the estimates for next year are under consideration.

Personal.—Dr. Clarence L. Starr, chief surgeon of the Hospital for Sick Children, Toronto, has resigned to accept the appointment of professor of surgery at the University of Toronto.——Dr. Murdock Mackenzie, Honan, China, gave an address on the contrast between the lives of Chinese and Canadian women, at the annual meeting of the Westminister Women's Auxiliaries, at Toronto, recently.——Dr. Graham Chambers, Toronto, who was lost in the woods near Port Arthur, Ont., September 29, was found by the searching party, October 13, on the shores of Deer Lake, in a very weakened condition. He had not tasted food for thirteen days, did not have matches, and his feet were slightly frozen. He described his trouble as akin to trench foot. Dr. Chambers is now convalescing at Fort Frances, Ont., and his present condition is reported as being favorable.

GENERAL

Christmas Seal Sale.—The National Tuberculosis Association announces the fourteenth annual Christmas seal sale for the benefit of the fight against tuberculosis. It is reported that there are 1,000,000 active cases of tuberculosis in the United States and 130,000 deaths yearly from the disease, averaging 120 per hundred thousand population. Seventy-five

thousand lives a year have been saved as compared with the death rate of fifteen years ago.

New Medical Society.—The Southern Society of Anesthetists will be organized at the annual meeting of the Southern Medical Association, to be held, November 14-17, at Hot Springs, Ark. Information may be obtained from Dr. William Hamilton Long, 1922 Deer Park Avenue, Louisville, Ky., organization secretary.

American Child Hygiene Association.—The annual meeting of the association, formerly known as the American Association for the Study and Prevention of Infant Mortality, will be held, November 2-5, at New Haven, Conn., with Dr. Joseph I. Linde in charge of the clinics. The program will include the following subjects: coordination of local, state and national child health activities; health education in the home; psychology of health education; rural problems—nutrition, habits, and county centers; day nurseries; special problems of directors of divisions of child hygiene; nursing, teaching methods and equipment in health programs for the child under 6 years of age, and volunteer workers.

Bequests and Donations.—The following bequests and donations have recently been announced:

Cornell University, Ithaca, N. Y., $1,500,000, for a new chemical laboratory, by George F. Baker, New York City.

Harvard University, Boston, $200,000 for the study of the origin and cure of cancer, to be known as the Elizabeth Worcester Mills Fund in memory of his wife by the will of Hiram F. Mills.

Fifth Avenue Hospital, New York City, $100,000, for the completion of the building by T. F. and H. E. Manville; $60,000 from an anonymous donor, and $20,000 from Mrs. E. C. Converse, Greenwich, Conn.

Manhattan Eye and Ear Hospital, New York; the Masonic Hospital, Ithaca, N. Y., each $10,000 by the will of Mrs. Jemina S. Simms.

Episcopal Hospital and Chapin Memorial Home for the Blind, Phila., each $10,000; Pennsylvania Society to Protect Children from Cruelty, $4,000; Episcopal City Mission, $4,000; Children's Seaside Home, Atlantic City, N. J., and the Visiting Nurses' Society, each $3,000; Seaside Home for Invalid Women, Atlantic City, $2,000; Christ Home for Children, Angora, the Home of the Merciful Saviour for Crippled Children, the Children's Hospital, the Pennsylvania Society for Prevention of Cruelty to Animals, the Franklin Home for Inebriates, each $1,000; Philadelphia Lying-In Charity, $800, and $500 to the Episcopal Hospital for memorial tablets to decedent's parents and the Douglas Memorial Hospital, under the will of Emily Dutilh.

University of Pennsylvania, $10,000 to the trustees for the maintenance of beds in the orthopedic ward of the University Hospital, Philadelphia, in memory of her parents, S. and K. E. Conrad, by the will of Edith E. Collins.

Jewish Consumptive Institute of Philadelphia, $1,000; Jewish Sheltering Home, $500; Mount Sinai and the Jewish Hospital, each $200, by the will of Annie Wexlar.

Serbian Commission Visits American Medical Institutions. Under the auspices of the Rockefeller Foundation, a commission of medical men from Belgrade, Serbia, consisting of Dr. G. J. Nikolitch, undersecretary and first medical officer of the ministry of health, Dr. G. Joannovitch, professor of pathologic anatomy, and Dr. R. Stankovic, professor of internal medicine of the Belgrade medical faculty, are visiting American medical institutions. October 14, the commission visited Toronto, later going to Montreal and Cleveland. The members were entertained at the Western Reserve University Medical School and a dinner was given them by the faculty at the Cleveland University Club. October 20, they arrived in Chicago, remaining until October 26. The time was occupied in visiting all of the medical institutions of the city, particularly those showing industrial medicine and the handling of contagious diseases. They were entertained by the faculties of the various medical schools, and attended the Pasteur Lecture and banquet given by the Institute of Medicine. Following the visit to Chicago, the commission went to Rochester, Minn., and during the coming weeks will visit the University of Iowa, the Washington University, St. Louis, the University of Cincinnati, and medical institutions in Baltimore, Philadelphia and Washington, D. C., finishing their tour in New York.

New Regulations for Narcotic Drugs.—The Commissioner of Internal Revenue, under date of October 19, has issued instructions to narcotic agents and other officials concerned in the enforcement of the Harrison law, amending the instructions issued July 31, 1919, in regard to the application of the law to the treatment of incurable diseases and drug addicts. Regarding the use of narcotics in the treatment of acute disease, the Commissioner holds that "without reference to the question of addiction, a physician acting in accordance with proper medical practice may prescribe or dispense narcotics for the relief of acute pain or for any acute condition, such as influenza, pneumonia, renal calculi, broken limbs, etc." This practically gives the physician the right to use narcotic drugs for actual disease conditions, in accordance with the recognized usage of the medical profession.

Regarding the use of narcotics in the treatment of incurable diseases, the Commissioner instructs his agents that "a reputable physician directly in charge of bona fide patients suffering from diseases known to be incurable . . . may . . . strictly for legitimate medical purposes, dispense or prescribe drugs for such diseases, provided (1) the patients are *personally attended by the physician*, (2) that he *regulate the dosage*, (3) and *prescribes no quantity greater than that ordinarily recommended by members of his profession*[1] to be sufficient for the proper treatment of the given case." If the patient, through carelessness, secures more narcotics than are necessary, the physician will be held responsible. The prescription must show the date, the full name and address of the patient and describe in indisputable terms the exact nature of the ailment for which issued. It is not lawful, under any circumstances, to place in the hands of an addict, through prescription or otherwise, a sufficient quantity of narcotic drugs to last a week. In incurable, aged, and infirm cases, geographically isolated, the physician may, at his own risk, upon obtaining permission from the narcotic agent in charge of the district, prescribe or dispense a week's supply or more provided it is placed in the custody of a responsible nurse or attendant. Accurate records must be kept of such prescribing and administration.

Regarding the use of narcotics in the treatment of addicts, mere addiction alone is not regarded as incurable disease. The new instructions divide the addicts into two classes: (*a*) those suffering from infirmity or old age, who are confirmed addicts of years' standing and who, in the opinion of a reputable physician in charge of the case, require a minimum amount of narcotics in order to sustain life. Such addicts may be treated in the same manner as those suffering from incurable disease. A responsible physician may prescribe or dispense the minimum amount necessary to meet the absolute needs of the patient. The physician will be held responsible for the results. The physician issuing such a prescription must state on the prescription that the patient is aged and infirm, the age of the patient and the fact that the drug is necessary to sustain life. (*b*) Ordinary addicts must be treated in accordance with the experience of the medical profession, which is that ordinary cases yield to proper treatment, that so-called reductive ambulatory treatment is not effective and that any method of treatment which makes no provision for confinement during withdrawal is a failure in the great majority of cases. The bureau will not, under any circumstances, sanction the treatment of addicts where the drugs are placed in the addicts' possession or where the treatment covers more than thirty days or the patient is not confined in a proper institution. If a physician places narcotic drugs in the possession of an unconfined addict, such action will be regarded as showing lack of good faith. Doubtful cases or those not falling within any of these instructions will, upon request, be investigated and special instructions based upon the recommendations of the inspecting officers will be issued.

LATIN AMERICA

Election of Officers.—The *Amazonas Medico* brings word of the reelection of Dr. A. da Matta as president of the Sociedade de Medicina e Cirurgia do Amazonas; Dr. Galdino Ramos is vice president, and Dr. Fulgencio Vidal and Dr. Linhares de Albuquerque are the secretaries.

FOREIGN

Italian Congress of Medical Women.—Dr. Carcupino-Ferrari organized a conference of the women physicians of Italy at Salsomaggiore, October 14-16.

New Health Journal.—It has been announced by the Federation of Medical and Allied Sciences that a journal entitled *Health* will be published weekly in England.

United States Medical Standards for China.—Under the direction of the Philadelphia College of Pharmacy and Science, the United States Pharmacopeia is being translated into the Chinese language, so that American medical standards may be adopted.

Radium Hospital.—A new hospital has recently been opened at Manchester, England, to be used exclusively for radium treatment. In 1920, 8,000 treatments were given by the Manchester and District Radium Institute at the Royal Infirmary, Manchester, for the treatment of cancer in its various stages. This is the first hospital of its kind to be opened in Great Britain.

1. Italics ours.

Eightieth Birthday of Professor Murri.—A delegation from various medical societies, the medical department of the army, and scientific organizations brought a floral tribute to Augusto Murri, September 7, his eightieth birthday, and others showered him with congratulations. Murri celebrated the day, himself, by presenting the Bologna province seaside sanatorium with 100,000 liras, bringing to 500,000 his total donations to this institution. He was Baccelli's assistant until appointed professor of clinical medicine at Bologna.

The Cataract Memorial.—As mentioned on page 1192, the city of Tournai in Belgium was the scene recently of the unveiling of a memorial to Michel Brisseau. The *Scalpel* describes it as a bronze tablet placed on the church where he was baptized. The tablet bears the inscription: "A Michel Brisseau, 1675-1745. Bienfaiteur de l'Humanité pour la démonstration du siège de la cataracte. Erigé par un comité franco-belge d'ophthalmologistes. 25 Septembre, 1921." Brisseau's "Traité de la Cataracte et du Glaucome," published in 1709 at Paris, was dedicated to Messire Guy Crescent Fagon, the king's body physician, and it was reproduced in a limited edition with all its old illustrations, characters and parchment, as mentioned in the previous notice. Tournai was the scene of a famous tourney when Henry the Eighth, Maximilian of Austria, Margaret, the regent of the Netherlands, and Charles of Castille were gathered there. This famous tourney was reproduced in a pageant there in 1913.

Cause of Explosion at Oppau.—The *Medizinische Klinik* relates that this explosion and a similar one a few months ago in Silesia have revealed hitherto unsuspected properties in the mixture of ammonium sulphate and ammonium nitrate. At Oppau, 4,000 tons of the mixture were in a silo. It is hard, and pieces have to be chopped off. While ammonium nitrate has explosive properties, it requires so much energy to cause that reaction that this salt has been regarded as a safe substance. Some chemical transformation may have rendered it explosive, or the chopping off may have caused the explosion. Pieces had been safely chopped off up to the very morning of the day of the explosion. In the Silesia explosion a carload of ammonium nitrate exploded as it was being unloaded. The mixture of *ammonsulfat* and *ammonsalpeter* is used in production of fertilizers, and this has never been regarded as a dangerous trade. Our exchange adds that scientific and industrial safety research now have a responsible task before them in solution of the questions raised by this explosion.

Memorial to Lombroso.—The unveiling of the memorial to Cesare Lombroso at Verona was an imposing event, September 25, with procession, and fifty banners, with representatives of the government and medical and legal sciences, delegates from numerous scientific organizations in Italy and elsewhere and official representatives of France, Belgium, Switzerland and Spain. Twenty-three nations contributed to the fund for erection of the monument, which is the work of the sculptor Bistolfi. Lombroso was lauded as the apostle of the transformation of the prison from a place of punishment to a clinic for restoration to moral health. He was professor of psychiatry at Turin, but he was born at Verona. He died in 1909, three years after the Sixth International Congress of Criminal Anthropology had convened at Turin on the occasion of the fiftieth anniversary of his entering on his professional career. The inauguration of the monument was followed by a banquet at which Prof. Ugo Lombroso, his son, presided. The official ceremonies were in the theater in the evening where addresses were made by Antonini on Lombroso's work in combating pellagra, etc., and by Ferri on his work in criminal anthropology. Telegrams were read from Max Nordau, Murri and numbers of others.

Deaths in Other Countries

Dr. **Lalit Mohan Banerji,** Bengal, India, died from jaundice in July.——Dr. **G. Hunter,** examiner in physiology, Royal College of Surgeons, Edinburgh, author of "Galvanism in the Treatment of Neuritis," aged 79.——Dr. **Herluf Arendrup,** secretary of the permanent pharmacopeia commission of Denmark, and surgeon major.——Dr. **E. G. A. ten Siethoff** of Gravenhage, Netherlands, noted as an otologist and for his works on crystallography, the microphysical study of urine, etc.——Dr. **L. C. H. Goossens** of Rotterdam.——Dr. **Hölker,** of the Prussian ministry of the interior, killed in a street railway accident.——Dr. **A. Casali,** professor of ophthalmology at the University of Florence.——Dr. **A. Debrusner-Albrecht,** a Swiss gynecologist, aged 63.——Dr. **P. Lupo,** formerly professor of surgery at the University of Naples, aged 76.

Government Services

Veterans' Bureau Takes Over Naval Hospital

Fort Lyon, the naval tuberculosis hospital located in Colorado, has been transferred from the Navy Department to the U. S. Veterans' Bureau and will be used in the future for the treatment of tuberculous ex-service men. Naval patients afflicted with pulmonary troubles, who were inmates of Fort Lyon, were transferred to the Fitzsimmons General Hospital conducted by the Army at Denver for further treatment. Naval patients at Fort Lyon, who were too ill to be safely removed, will remain there indefinitely.

Decentralization in Care of Veterans

District managers of various regional offices of the U. S. Veterans' Bureau have been holding conferences in Washington for the purpose of decentralizing the work of the bureau and conferring powers on these regional directors for prompt aid to ex-service men. The President has taken a hand in the work by sending direct instructions that there must be rapid and effective efforts made to give World War veterans immediate attention in the way of hospitalization, compensation and vocational training.

Legislation for Additional Hospitals for Veterans

An appropriation of $16,000,000 for the construction of additional hospital facilities to provide medical, surgical and hospital services for former service men is contained in a bill introduced by Representative Langley of Kentucky, chairman of the House Committee on Public Buildings and Grounds. The money is supplementary to the $18,500,000 appropriated at the last session of Congress, the total of which has already been disbursed with the exception of $1,339,000. In the new Langley measure $15,500,000 will be used for hospitals and extensions to present facilities to be distributed under the supervision of the Secretary of the Treasury. The other $500,000 carried by the bill will be assigned to the purchase of additional land and for the erection of new buildings at the Mount Alto institution. Representative Langley presented his bill after extensive conferences with representatives of the Treasury Department and with officials of the American Legion. It was agreed that this appropriation in addition to the $18,500,000 already being used would be sufficient.

Colonel Forbes Denounces Present Vocational Training Methods

Col. Charles R. Forbes, director of the U. S. Veterans' Bureau, has submitted a report to President Harding denouncing the present method of vocational training for disabled war veterans and recommending that a government vocational university be established. Colonel Forbes lays stress on the allegation that ex-service men at present taking vocational training are the victims of neglect as far as their physical welfare is concerned. He insists that the establishment of a central government university of vocational training will give the U. S. Veterans' Bureau the opportunity to care for their health and result in the upbuilding and the improvement of their physical well-being. He maps out an extensive program of turning Camp Sherman, Ill., into a large center for such training and states that this institution could be put into full operation giving training to thousands of disabled veterans within three months' time.

Speedway Hospital Renamed

It has been announced that the Secretary of the Treasury, with the President's approval, has designated the new Public Health Service hospital, formerly known as the Speedway Hospital, as the Edward Hines, Jr., Hospital, by request of the American Legion of Illinois, in honor of Edward Hines, Jr., Lieut., U. S. Army, who died in Chaumont, France, 1918. On Armistice Day the American Legion will plant a memorial avenue of trees in the grounds. A contract was awarded, October 24, for a recreation building at a cost of $96,240. The hospital was erected at a cost of more than $5,000,000, of which $3,400,000 was appropriated by Congress and the remainder donated by Mr. and Mrs. Edward Hines.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Sept. 30, 1921.

More Diplomas of the "Oriental University"

In a previous letter (THE JOURNAL, Feb. 12, 1921, p. 461) I pointed out that the representative of the "Oriental University" of Washington, D. C., was offering for sale medical diplomas made out in France. THE JOURNAL pronounced at the time just censure on these peculiar offers, which cast regrettable and unjustified reproach on the medical instruction of the United States (THE JOURNAL, Feb. 12, 1921, p. 453). In France, also, this deplorable condition of affairs has aroused considerable indignation, and the minister of the interior has looked into the matter, as will be seen by the following letter addressed by the prefect of the police to the president of the syndicate of physicians of the department of the Seine:

Dear Sir:—I am informed by the minister of the interior that an institution terming itself the "Oriental University," the seat of which is at Washington and which has established at Nice (33, rue Pasteralli) a branch establishment under the direction of Mr. Poulain de Marceval and Professor Dr. Comte Colloredo, is delivering, on the payment of sums ranging from 60 to 100 dollars (or the equivalent in francs), medical and dental doctor diplomas that are held to be worthless by competent American university authorities. I would therefore request that you be so kind as to put the members of your professional group on their guard against the activities of this organization. In case you know of persons practicing medicine without other show of authority than the possession of the diplomas issued by this organization, I would be obliged to you if you would give me their names.

Rights of Publishers with Respect to Manuscripts Offered Them for Publication

When the author of a scientific or literary work delivers to a publisher the manuscript of the work of his pen and asks him to publish it, the question arises as to what are the rights of the publisher when he consents to examine the manuscript. May he examine the manuscript not only from the commercial standpoint but also from the angle of the intrinsic value or the technical value of the work? If the publisher concludes that he is entitled to such rights, may he submit the manuscript to a specialist in order to secure his opinion? These questions are of interest to physicians and surgeons who enter into relations with publishers in regard to the publication of their works. The submitting of manuscripts to specialists has some delicate features. If it turns out that, as a result of the opinion rendered by a specialist, the publisher returns the manuscript to the author, saying that he does not desire to publish it, some fears may be entertained lest the specialist who examined the manuscript may take undue advantage of the privilege accorded him and may make use, to his personal gain, of the discoveries, the observations, etc., contained in the work in question. It may be feared that he will appropriate the main idea of the work—the original features in the conception of the author. It should be borne in mind that, in placing his work in the hands of the publisher, the author retains the exclusive rights thereto, so long as no contract or agreement between them has been entered into.

The *tribunal de commerce* of the department of the Seine recently had occasion to occupy itself with these questions in connection with a suit for damages brought by an author against the publisher to whom he had entrusted his manuscript. The court rejected the demand of the author, holding that the publishing trade, dealing as it does with works on widely different subjects, has the unquestionable right, with respect to inquiry into any matter, to examine into the publication of the manuscripts submitted to them, not only from the commercial standpoint, as regards the chances of success of the publication or the risks of slow sale, but also from the angle of the intrinsic value of the work: the essentially new features, mode of presentation, utility, degree of general interest, etc., such a technical evaluation being of paramount importance in arriving at decisions in commercial affairs. Since, therefore, it is impossible to expect that a publisher can examine personally, from a scientific and literary standpoint, all the works submitted to him, he is of necessity compelled to have recourse to specialists in order to secure opinions on which to base his decisions. The publisher would be at fault only in case the counselors whom he employed, the choice of whom lies exclusively in his hands, did not present for the author all the guarantees of discretion that he has the right to demand. If it could be proved that the specialist to whom the publisher submitted the manuscript for an opinion abused the confidence placed in him by the publisher, the right of the author to recover damages would be unquestionable, since the work remains the exclusive property of the author. But when the author requests that his manuscript be published, it is not in contravention of his property rights to afford the publisher, who will often be compelled to go to heavy expense, if he publishes the work, an opportunity of inquiring carefully into his chances of not only getting back his original outlay but of also reaping a certain amount of profit from the sale of the work offered to him for publication.

Roentgenologists in Hospitals

The death of Dr. Charles Infroit, a victim of roentgen rays, having deprived the Salpêtrière roentgenologic laboratory of its director, the prefect of the department of the Seine has appointed as his successor a roentgenologist who is not a doctor of medicine. This appointment has aroused loud protests from the medical profession, and, more particularly, from the Syndicat général des médecins français électro-radiologistes. The president of this syndicate has addressed to Dr. Louis Mourier, director general of the board of public charities, a letter in which he emphasizes the desirability of conferring on doctors of medicine positions of responsibility in roentgenologic work in the hospitals. In fact, the establishment of a roentgenologic diagnosis at all worth while requires a technical knowledge of anatomy and clinical medicine such as only a physician can be expected to possess. In hospital practice the roentgenologist is the intimate collaborator of the physician and surgeon. At the present day, roentgenologic work in laboratories does not require so much the services of a skilful photographer and electrician. The main thing is the ability to interpret a roentgenogram or a fluoroscopic image—to point out their clinical significance. The president of the syndicate added that his protest was based furthermore on the formal opinion of the Academy of Medicine, which, as early as 1908, expressed the view that "posts of roentgenologists in hospitals should be held by doctors of medicine." Also the administrative council of the Syndicat des médecins of the department of the Seine fully endorsed the protest above mentioned.

BELGIUM

(From Our Regular Correspondent)

Oct. 4, 1921.

Proposed Changes in the Medical Curriculum

The commission appointed to examine into the questions pertaining to the proposed modifications in the medical curriculum, after a series of investigations covering a considerable period of time, has finally submitted its report to the Royal Academy of Medicine. From a strictly medical standpoint, the commission admits that the premedical course in the natural sciences should comprise two years of study. To a certain extent, the various studies that go to make up the

premedical course should be adapted to the special needs of the students pursuing them. For this reason, it seems advisable to establish somewhat divergent courses in physics, chemistry, zoology and botany to suit the requirements of these four classes: (1) medical students; (2) students of veterinary medicine; (3) future pharmacists and candidates for the degree of doctor in the natural sciences, and (4) future engineers (civil, electrical, etc.) and candidates for the doctor's degree in physics and mathematics. The instruction in the premedical course should comprise two years of study. It is recommended that a course in physiologic chemistry, with laboratory practice, be made an inherent and obligatory part of the regular premedical course. Every institute of physiology should include a laboratory for biophysical research, under the direction of a qualified person, who, in some instances, would be, at the same time, the director of the institute, and, under other conditions, an assistant. The course in comparative anatomy should be confined to the essential ideas, of interest to physicians. The duration of the studies for the doctorate should be three years. The course in internal pathology, external pathology, obstetrics, ophthalmology and psychiatry should be connected with the activities of the corresponding hospitals. Thus it would be possible to confine the theoretical instruction to the essential principles, and the drill work would be accordingly enhanced. At the same time, it would be possible to decrease the number of hours spent by the students on these courses. The course in pharmacology should be limited to the elements of pharmacognosy and pharmacography such as are absolutely indispensable to physicians. The course in pharmacodynamics should be chiefly experimental and accompanied by practical exercises. The essential principles of general and special pharmacology such as physicians need to know may be easily taught in connection with the instruction in pharmacodynamics. This is being done, at the present time, in several universities of Belgium. In other medical schools, on the other hand, separate and detailed instruction in special pharmacognosy, combined with general pharmacognosy, has been maintained. The commission condemned unanimously the latter system. A special therapeutic clinic where students may be taught to formulate and prescribe appropriate regimens is advocated. Students should be given, by a few practical lessons, some idea of roentgenology and physiotherapy. The course in general pathology should be confined to physiologic pathology. It should be an experimental course, accompanied by demonstrations and practical exercises. The following subjects should be omitted from the course in general pathology: (1) the ideas of chemical pathology; (2) immunity and the chapters connected therewith; (3) everything concerning neoplasms, and (4) all propedeutic theories. In fact, at the present time, no one person can compass the diverse and extensive knowledge demanded by the course in general pathology as conceived by the old curriculum and still applied in certain Belgian universities. It is very easy to restrict the course in general pathology to physiologic pathology and experimental pathology, and to entrust the ideas of chemical pathology, immunity, propedeutic theories and the field of neoplasms to professors who are especially qualified in these subjects, without increasing in any manner either the number of hours of instruction assumed by each teacher or the total number of professors. It is only a matter of dividing up the subjects in a more acceptable manner among the various instructors. The course in bacteriology and parasitology should be made obligatory and should be accompanied by demonstrations and practical drill work. The preliminary practical instruction in the medical and surgical policlinics should be given at the beginning of study for the doctorate, in order that the students may, as early as possible, pursue to advantage the regular courses in the medical and surgical clinics. It is desirable to introduce into the regular curriculum an obligatory course, which must be, above all, practical, in the elementry principles of the various specialties that are indispensable to every practitioner. This course would require only a few hours of instruction. After the same manner, a short course in ophthalmology, which is so very important at the present time, should be given a place in the curriculum.

Medical Instruction and Examination

The instruction given in the medical schools should be, for the most part, objective and practical. Long dissertations should be reduced to a minimum, and when they do occur they should be accompanied by numerous demonstrations and observations. The majority of the courses should include practical drill work, during which the students should be aided by a number of assistants, monitors (senior pupils) and preparators. Overloading the course of study should be assiduously avoided. This may be accomplished by carefully limiting the duration of time given to each subject, in accordance with its importance. The medical faculties should draw up a detailed schedule of the subjects to be handled by the various professors, in order to avoid omissions and duplication of effort. It may possibly be advisable to restrict the use of the title of ordinarius to those professors who give the principal courses, in which the instruction continues throughout an academic year. Only such professors would be entitled to a vote at the faculty meetings. With reference to the relative importance of the various branches, the commission of the Royal Academy of Medicine adopted the following propositions: To the various courses and clinics, time should be assigned in accordance with their relative importance. Every course should be assigned to a period of the day at which there will be no conflicts. If a student has failed in his examination in one branch or several branches, he should not be allowed, during the next semester, to confine his work to the subjects in which he failed, unless he succeeded in obtaining seven tenths of the credits represented by all his subjects. If he secured less than seven tenths of his credits, the preceding semester, he should be obliged to take all the examinations at the end of the semester. Such a ruling exists in many foreign universities and seems to be just. The students of medicine have often demanded that it should be applied to them.

Training of Specialists

The commission held that it was not advisable to establish, as distinct from the examination for future medical practitioners, a second examination of a more narrow scientific nature, consisting, for example, mainly of a dissertation, which, while conferring the title of doctor of medicine, would not entitle the holder of the degree to practice medicine, but would take the place of the practitioners' examination as regards bacteriologists, anatomists, physiologists, etc. The commission regarded as dangerous such an innovation, which would create a category of laboratory men who would not have had the same training as the medical practitioners, and who, in consequence of their rudimentary clinical training, would run the risk of becoming ensconced in some narrow scientific field without comprehending the relations between their laboratory activities (whether applied to diagnosis or restricted to research) and the treatment and prevention of disease, which is the supreme goal of medical science.

The same motives induced the commission not to make any proposals in regard to splitting up the preparation and examination for the medical doctorate by creating special diplomas for internists, surgeons, ophthalmologists, roentgenologists,

etc. The commission was convinced that all physicians should have the same preparation and be given the same opportunity to learn all that is necessary in order properly to practice their profession. However, the commission expressed the desire to see inaugurated in every university a form of instruction designed to develop specialists (ophthalmologists, otologists, rhinologists, laryngologists, gynecologists, roentgenologists, etc.). The realization of such a plan would afford Belgian physicians an opportunity of specializing in a given field of medicine, after they had finished their general course.

BUENOS AIRES

(From Our Regular Correspondent)

Aug. 30, 1921.

Smallpox

The former Dr. Penna, president of the board of health, took great pride in the fact that he had eradicated smallpox from Buenos Aires through compulsory vaccination. Even in the provinces no epidemics occurred for a long time owing to the spread of vaccination, but just sporadic cases. Latterly, however, as the occurrence of an epidemic seemed most unlikely, people lost interest in vaccination. Unfortunately, this optimism must now vanish, as an epidemic has broken out in the province of San Juan. The disease apparently was imported from Chile. In a short time more than 1,000 cases occurred. The provincial board of public health has requested the assistance of the national department of health to control the epidemic. The national department has sent a commission to enforce vaccination and prophylactic measures. So much vaccine was sent that there is now a scarcity in the capital and coast provinces, where everybody wants to be vaccinated. At the vaccine institute they had to increase fivefold the number of calves furnishing vaccine. Even beyond San Juan some cases have already occurred, namely, at Cruz del Eje (Cordoba), and it is said to have appeared at Lanus, a ten minutes' ride from Buenos Aires.

Centenary of the University

Many celebrations were held to commemorate the centenary of the foundation of the University of Buenos Aires. Although the medical school was founded earlier, the reorganization of the faculties into one university took place on Aug. 12, 1820, thanks to the efforts of the progressive minister Rivadavia. The ceremonies were presided over by the president of Argentina, heads of departments, presidents of the two chambers of congress, the supreme court, rector of the university, deans, university boards, and others. Each school had in addition its own celebration. The medical school combined this ceremony with the closing exercises. A number of foreign delegates attended, among them Drs. O. Maira of Santiago, Chile, Brito Foresti of Uruguay, and Bruno Lobo of Brazil.

Bacteriologic Institute

After spending eight years in this country, Professor Kraus completed his contract with the national government and has given up the direction of the bacteriologic institute of the national department of public health. He has been engaged to head the bacteriologic institute of São Paulo (Brazil). Kraus' place will be taken by Dr. A. Bachman, professor of microbiology in the School of Medicine of Buenos Aires, and at present in charge of the antimalaria campaign at Tucuman. This appointment has made a very good impression. Dr. Kraus organized an important institute that produces large quantities of serums, vaccines and organic extracts which are supplied free of charge to hospitals, municipal and public assistance authorities and are sold to the people at a low price. He also organized some scientific laboratories that have already done some valuable work. Unfortunately, during the last few years they rather went back than forward, as the government did not assist in the development of the institute, neglecting to fill vacancies in the higher positions, etc. Kraus made many studies on dengue, typhus fever, protein therapy, nonspecific therapy (especially in anthrax), Borna disease, goiter, and other diseases. His pupils have published many papers on serums and toxins (Sordelli), poisons (Houssay), dysentery (Riganti), leishmaniosis (Barbará y Neiva), etc. Before Kraus departed, a great banquet was given in his honor. More than 100 people attended, and speeches were made by Kraus himself and Drs. Araoz Alfaro, Lozano, Houssay and Sordelli.

Medical School of Rosario

Competing tests are now being held to appoint professors for the medical school of Rosario. The appointments so far made have been well received, although some of the appointees are mere beginners. The University Del Litoral has received an appropriation of 3,000,000 pesos, granted by the government. Over two thirds of this sum will go to the medical school of Rosario.

Interchange of Professors

Dr. Labbé, professor of general pathology and therapeutics in the medical school of Paris, is now here giving a series of lectures on nutritive diseases. The course includes twelve lectures and six biochemical demonstrations.——The annual interchange of professors with the University of Montevideo has already begun. Professor Butler has already come here and Prof. C. A. Castaño has been sent to Montevideo. ——During his stay here, Prof. Bruno Lobo (Rio de Janeiro) gave two lectures, on "Biochemical Constitution of Living Beings" and "A Naturalist's Excursion to the Island of Trinidad."

PRAGUE

(From Our Regular Correspondent)

Oct. 4, 1921.

New Minister of Health

On September 20 the cabinet resigned and caused a change in the ministry of health where Dr. Procházka has been replaced by Dr. B. Vrbensky. The new minister, although a dentist by profession, has had the full training of a physician as is usual in Czechoslovakia. He is a member of the national socialistic party and has been a member of two previous cabinets of the republic, once as minister of food control and once as minister of public works. Because of his political adhesion it is very likely that he will be able to overcome the opposition to the ministry of health which comes from socialistic parties. The resistance against the ministry grew so strong that some time ago it looked doubtful whether a minister of health would be reappointed in the new cabinet or whether the activities of the ministry of health would become a part of the ministry of social welfare. The opposition to the ministry was based chiefly on political reasons rather than any well grounded criticism and it is hoped that the nomination of a socialist to the position will solve the situation.

End of Medical Strike

The strike of the medical officers in the sickness insurance associations which has been progressing for three months has come to an end. The insurance associations declared their readiness to accept the conditions of the Central Organization of Czechoslovak Physicians. It was due to the loyal behavior of the physicians to their organization that about 75 per cent. of their demands have been obtained. The fees have been raised 50 per cent. and made retroactive to March

1. It was quite natural that bad feeling resulted between the medical profession and the socialists who control the insurance associations and that the socialists refuse to support any legislation favoring the medical profession.

Erection of State Institute of Hygiene

A contract has just been signed between the International Health Board of the Rockefeller Foundation and the Czechoslovak Ministry of Health with regard to the erection of State Institute of Hygiene in Prague. The project will cost 50,000,000 Cz. crowns. The Foundation contributes 27,000,000 and the Czechoslovak government will supply the rest. The institute will consist of a large central building, a smaller building for serology, stables, service buildings and a colony for employees. There will be divisions for bacteriology, serology, Pasteur treatment, control of drugs and foods, research laboratories in hygiene and a school of public health. The newspapers comment on the generous gift of the Foundation with recognition and point out its moral importance and significance to the young republic. The liability of the Foundation expires at the end of six years and therefore it can be hoped that by that time the project will be completed. It should be the most complete institute of hygiene in the world.

BERLIN

(From Our Regular Correspondent)

Sept. 30, 1921.

Increased Attendance of Women at Prussian Universities

According to recent statistics, there were 6,137 women studying in Prussian universities during the winter semester 1920-1921; among this number there were 325 foreigners. Of the total number, 4,832 were regularly matriculated students, while 1,305 had secured merely the privilege of attending lectures, not having presented evidence of maturity in the form of a diploma from a secondary school. The University of Berlin stands at the head of the list, with 1,830 students; the other universities presented the following figures: Bonn, 607; Cologne, 549; Breslau, 547; Münster, 493; Frankfort, 487; Göttingen, 332; Marburg, 331; Königsberg, 298; Halle, 268; Kiel, 214; Greifswald, 181. Of the women students, 330 were under 20 years of age; 4,853 were between 20 and 30, and 954 over 30. The following statement will show their religious beliefs and tendencies: Protestant, 3,657; Catholic, 1,613; Masaic, 722. Seventy-five belonged to other confessions, while seventy admitted no religious beliefs. As to family connections, 5,761 were single, while 376 were married, widowed or divorced (separated). As to the circles of society from which they were sprung, 2,368 were from the families of higher public officials; 1,338 were of the mercantile class; 326 from the mechanics class, while 2,105 were from various other classes. By far the larger half were pursuing literary and philosophic studies, as may be seen from the following: philosophy (in the narrower sense), 480; philology (modern), 1,203, (ancient), 147; history, 312; art and history of art, 362; mathematics, 446; natural sciences, 530; agriculture, 53. Sixty-nine were studying theology; 183, law; 1,065, medicine; 162, dentistry, and 886, political science. As the purpose of their study, 1,625 designated "general culture"; 3,646, "preparation for examination in a given profession," and 866, "preparation for examination for doctor's degree." As to their previous scholastic preparation, it may be noted that 2,351 were graduates of a *Realgymnasium* (Latin but no Greek); 593 had finished the classic gymnasium (Greek and Latin training); 491 had completed the course of an *Oberrealschule* (no ancient languages); 741 had been admitted to university study on the basis of diplomas from secondary schools for girls, supplemented by additional study controlled by entrance examinations, while 1,537 were admitted by reason of having passed the state teachers' examination.

It is instructive to compare these figures with those of former years: For example, the total number of women students during the winter semester of 1908-1909 was 1,680 and in the summer semester of 1914, 2,896. In the winter semester of 1918-1919 the number had risen to 5,131, and in the winter semester of 1920-1921 to 5,131. With respect to age, the increase concerns mainly the age-group under 30, while the figures for the ages above 30 have not changed materially. As regards the various branches of study, medicine seems to have been especially attractive to women, since the war. The number of women studying medicine at the present time is almost ten times that of the period twelve years back. The increase in the fields of law and political science is much the same. A comparison of the numbers belonging to the various confessions shows the great increase among Catholics. Whereas the increase among other faiths was only threefold, the increase among Catholics was tenfold. From a sociological standpoint it is interesting to note that the mechanics and day laborers classes are furnishing an ever increasing number of women students.

With reference to preliminary scholastic training, changes may be noted. Whereas, in the winter semester of 1908-1909, of the 1,680 women students, only 347 held diplomas from secondary schools of high standing, in the winter semester of 1920-1921, 3,435, or more than 50 per cent., presented such evidence. Finally, as for the purpose of study in general, the change that has come about is especially worthy of remark. Whereas, as recently as twelve years ago, the extension of general culture was given as the main reason for study, now, definite goals of a professional nature are coming rapidly to the front.

Pamphlet for the Enlightenment of the People in Regard to Cancer

The executive committee of the society for cancer research and control (das deutsche Zentralkomitee zur Erforschung und Bekämpfung der Krebskrankheit) has published a pamphlet on cancer, for general distribution among the people.

Marriages

WILLIAM HOUSTON TOULSON, Baltimore, to Miss Helen Goodwin Joynes of Accomac County, Va., at Baltimore, October 15.

ERNEST FREDERICK RUSSELL, New York, to Miss Elizabeth Otis Buckingham of Pasadena, Calif., at Chicago, October 20.

ELDEN CHARLES BAUMGARTEN, Detroit, to Miss Emma Elizabeth Edkfeld of Unionville, Mich., October 17.

WELDON BRANCH KILTON, Harvel, Ill., to Miss Mildred Long of Monticello, Ill., October 5.

RALPH HENRY KUHNS, Seattle, to Miss Margaret Sloss of Ross Valley, Calif., September 14.

PAUL WINTER WILLITS, Grand Rapids, Mich., to Miss Alice Reese of Chicago, September 14.

JOSEPH R. TURNER to Miss Clauddeana Toulon, both of Tacoma, Wash., September 1.

FREDERICK W. O'BRIEN, Boston, to Miss Sara A. Green, Brookline, Mass., October 10.

HOWARD F. ROOT, Boston, to Miss Hester Livingston King, at Baltimore, October 8.

BURTON R. CORBUS, Grand Rapids, Mich., to Miss Harriet Cooper, August 6.

WILKES ADAMS KNOLLE to Miss Heline Fredrichs, both of New Orleans.

JOHN BOECK to Miss Minnie L. Goffy, both of Boise, Idaho, September 10.

Deaths

Milton Howard Fussell ● Philadelphia, University of Pennsylvania, Philadelphia, 1884; died October 15 ,on a railroad train en route to Williamsport, Pa., from acute dilatation of the heart, aged 66. Dr. Fussell was physician to the University Hospital, physician in chief to the medical dispensary and professor of applied therapeutics at the University of Pennsylvania; pathologist at St. Timothy's Hospital and physician to the Episcopal and Chestnut Hill hospitals. He was a member of the Philadelphia Pediatric Society; the Association of American Physicians; the College of Physicians, Philadelphia; the Philadelphia Neurological Society and the Pathological Society of Philadelphia. He was editor of "Tyson's Practice of Medicine" and author of "Differential Diagnosis of Internal Diseases, in Monographic Medicine." Dr. Fussell was chairman of the section in pharmacology and therapeutics, 1907; representative of the section on therapeutics in the House of Delegates of the American Medical Association in 1909, and representative for the state of Pennsylvania, 1911-1912. He served also as second vice president at the U. S. Pharmaceutical Convention and as a member on its committee on revision.

George A. Phillips, Bar Harbor, Me.; Medical Department of the University of the City of New York, 1882; member of the Maine Medical Association; at the time of his death was serving his second term in the Maine legislature; president of the board of trade; member of the board of health and the school board; formerly U. S. Pension examiner; during the World War served on the Bar Harbor Exemption Board; died, October 9, from chronic nephritis, aged 67.

William Edward McGuire ● Richmond, Va.; University of Virginia, Richmond, 1886; emeritus professor of clinical medicine, Medical College of Virginia; former president of the Richmond Academy of Medicine; member of the Southern Surgical and Gynecological Association, and the American Gastro-Enterological Association; at one time professor of gynecology, University College of Medicine, Richmond; died, October 7, from heart disease, aged 61.

William Advance Potter, St. Louis; College of Physicians and Surgeons of St. Louis, 1892; Marion-Sims College of Medicine, St. Louis, 1895; member of the Missouri State Medical Association; served as captain, M. C., U. S. Army, during the late war; physician in charge of the Jewish Clinic and the clinic of the University of St. Louis; died, September 22, from pneumonia, at the Deaconess Hospital, aged 51.

Frances Peleg Sprague, Boston; University of Maryland, Baltimore, 1857; member of the Massachusetts Medical Society; veteran of the Civil war; formerly a surgeon at the Massachusetts Charitable Eye and Ear Infirmary, Boston; member of the American Ophthalmological Society, and the Boston Society for Medical Improvement; died, October 6, aged 88.

Myron M. Reppard ● Middlebourne, W. Va.; College of Physicians and Surgeons, Baltimore, 1892; president of the Tyler County Medical Association; several times mayor of Middlebourne; served in the World war as examining physician for Tyler County; died, October 5, from injuries received when his automobile ran over him, aged 54.

Ira Darius Spencer, Croghan, N. Y.; Eclectic Medical College of the City of New York, 1889; health officer of Croghan; member of the Medical Society of the State of New York; member of the state legislature, 1902; died, October 11, at a hospital in Watertown, following a surgical operation, aged 54.

Edward S. Kiley, Pawtucket, R. I.; College of Physicians and Surgeons (Columbia University), New York, 1894; member of the Rhode Island Medical Society; former president of the Pawtucket Medical Society; at one time a ship surgeon; died, October 12, after a long illness, aged 52.

Marcius C. Kerr, Wilkensburg, Pa.; Starling Medical College, Columbus, Ohio, 1892; member of the staff, Emergency Hospital of the Carnegie Steel Company, Carnegie, Pa.; died, October 9, in the Columbia Hospital, from injuries received when his automobile collided with a truck, aged 57.

Meigs Jackson Bartlett, Clarksburg, W. Va.; College of Physicians and Surgeons, Baltimore, 1895; at one time president of the Glenville and Parkersburg Railroad Company; died, October 11, from blood poisoning, aged 61.

● Indicates "Fellow" of the American Medical Association.

Henry C. Shutte ● West Plains, Mo.; Missouri Medical College, St. Louis, 1881; ophthalmologist to the U. S. Pension Department; at one time president of the Missouri State Medical Association; died, October 12, in Chicago, from carcinoma of the throat, aged 63.

David Hobart Richardson, Barrington, Ill.; Rush Medical College, Chicago, 1882; member of the Illinois State Medical Society; school president and member of the board of trustees since 1895; died suddenly, October 16, from heart disease, aged 68.

Lloyd Moss Bergen ● Highland Park, Ill.; Rush Medical College, Chicago, 1889; head of the Highland Park board of health; former surgeon for the Chicago Northwestern Railroad and Northwestern Military Academy; died, October 17, aged 56.

Herman A. Brav ● Philadelphia; Medico-Chirurgical College of Philadelphia, 1898; member of the Philadelphia Pediatric Society; was taken ill on a trolley car, October 12, and died on the way to the hospital, aged 51.

John David Riker ● Pontiac, Mich.; University of Michigan, Ann Arbor, 1890; mayor of Pontiac, 1904; member of the Detroit Oto-Laryngological Society; died, October 8, from cerebral meningitis, aged 55.

Samuel N. Willis, Vine Grove, Ky.; Louisville Medical College, 1878; member of the Kentucky State Medical Association; also a druggist; died, September 26, from bronchopneumonia, aged 70.

Paul H. V. Dejoie, New Orleans; Flint Medical College of New Orleans University, 1895; the first colored physician to pass the Louisiana State Board of Medical Examiners; died, October 7, aged 49.

Charles Miller Foss, Dexter, Me.; Homeopathic Medical College of Pennsylvania, Philadelphia, 1868; a practitioner for more than half a century; died, October 9, from chronic nephritis, aged 74.

José Celso Barbosa, San Juan, P. R.; University of Michigan, Ann Arbor, 1880; member of the Medical Association of Porto Rico; member of the senate of Porto Rico; died recently, aged 63.

David Strack, York, Pa.; Jefferson Medical College, Philadelphia, 1887; member of the Medical Society of the State of Pennsylvania; died, October 4, from cerebral hemorrhage, aged 65.

Thomas Clayton Frame, Dover, Del.; University of Pennsylvania, Philadelphia, 1866; also graduated in law from the University of Pennsylvania; died, October 3, aged 81.

John F. Graves, Juno, Tenn. (license, Tennessee, 1910); member of Tennessee State Medical Association; died suddenly, October 7, from cerebral hemorrhage, aged 41.

David Richard Ginn, Dennisport, Mass.; Medical School of Harvard University, Boston, 1872; veteran of the Civil war; died, October 2, from cerebral hemorrhage, aged 80.

Harold B. Anderson ● Beloit, Wis.; College of Physicians and Surgeons (University of Illinois), Chicago, 1884; died, October 7, following a surgical operation, aged 56.

Josiah S. Hedges, Cleveland; Medical Department of the Western Reserve University, Cleveland, 1890; died October 9, from cerebral hemorrhage, aged 64.

Eli Denny, Nassau, N. Y.; Eclectic Medical College of the City of New York, 1888; died suddenly, October 4, in his garage, from heart disease, aged 65.

Albert W. Carson, Richland, Kan.; Medical College of Ohio, Cincinnati, 1875; practitioner for nearly half a century; died, September 29, aged 71.

William Francis Beckett, Titus, Ala.; Atlanta (Ga.) Medical College, Atlanta, 1856; practitioner for over fifty years; died, October 4, aged 88.

Bert Coffey, Connersville, Ind.; Eclectic Medical College, Cincinnati, 1895; died, October 9, following a long illness, at Straughn, Ind., aged 50.

Everett Shipley, Seaford, Del.; College of Physicians and Surgeons, Baltimore, 1891; died, October 2, from angina pectoris, aged 65.

Isaac P. Gould ● Bellevue, Ky.; Medical College of Ohio, Cincinnati, 1891; died, October 3, from acute nephritis, aged 50.

S. John Fraser ● Detroit; Michigan College of Medicine, Detroit, 1885; died, September 30, aged 63.

Willis C. R. Ford, Lisbon, La.; University of Nashville, Tenn., 1899; died recently, aged 48.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

SAL HEPATICA

Sal Hepatica is a saline laxative sold by the Bristol-Myers Company of New York. Little information is given or, apparently, ever has been given, concerning the composition of this product. Many years ago the stock medical journal advertisement contained this statement:

"*Composition.*—Sal Hepatica contains all of the Tonic, Alterative and Laxative Salts of the celebrated 'Bitter Waters' of Europe, especially those of Bohemia, as determined by actual chemical analysis of these waters, and fortified by the addition of Lithium and Sodium Phosphates."[1]

Sal Hepatica no longer "contains all the tonic, alterative and laxative salts . . . ," etc., for the label on a package recently purchased reads:

"SAL HEPATICA is an effervescent saline combination possessing medicinal properties similar to the natural 'Bitter Waters' of Europe, and fortified by the addition of Sodium Phosphate."

In 1909, the *Druggists Circular* published an analysis of Sal Hepatica which showed that the preparation contained only 0.04 per cent. of lithium phosphate. By referring to the two quotations just given it will be noticed that today the manufacturers make no claim that their preparation is fortified with any salt of lithium. A circular accompanying recent trade packages states:

"Sal Hepatica is composed solely of harmless salts, being absolutely free from Acetanilid, Phenacetin, Caffein, Calomel, opium or coal tar derivatives."

Since neither the names nor the amounts of the "harmless salts" are mentioned, the composition of Sal Hepatica is secret. It is a trick of the nostrum exploiter, old but ever popular, to mention numerous drugs which his preparation does *not* contain; it helps to distract attention from the fact that he does not tell what the preparation *does* contain!

In the old-time medical journal advertisements, one reads: "Sal Hepatica is the most powerful solvent of Uric Acid known." (The same advertisement as it appeared in those days in THE JOURNAL shows that claim toned down to: "Sal Hepatica is a powerful solvent of Uric Acid"). In those easy-going days Bristol-Myers Co. declared that: "Diabetes is treated with decided advantage by means of Sal Hepatica . . . it . . . possesses the property of arresting the secretion of sugar in the liver." In the old days, too, Sal Hepatica was recommended in the treatment of cirrhosis of the liver, Bright's disease, gravel, phthisis, etc.

The present advertising circular recommends Sal Hepatica as an eliminant, laxative or cathartic in Gout, Autointoxication, "Bilious Attacks," Rheumatism, Acute Indigestion, Catarrhal conditions of the stomach, Pyorrhea, Headache, Dizziness, Heart Burn, "Summer Complaints," "Derangements of the Stomach and Liver," Skin Diseases, Colic, Alcoholic excesses, and as a "preventive of Seasickness."

In 1914 the Council on Pharmacy and Chemistry published[2] a report on Sal Hepatica declaring it secret in composition and sold under exaggerated and unwarranted claims.

In view of the inquiries which THE JOURNAL continues to receive it seemed worth while to make a chemical examination of the present-day product. Accordingly specimens were purchased and analyzed in the A. M. A. Chemical Laboratory. The report that follows was submitted by the chemists:

"Sal Hepatica is a white, granular, odorless powder. It effervesces on the addition of water in which it eventually dissolves. The aqueous solution, after boiling to remove carbon dioxid, has an acid reaction to litmus.

"Since a great many medicinal substances are sold in effervescent form, and since practically no information is given by the manufacturer concerning the composition of Sal Hepatica, it became necessary to test for a considerable number of therapeutic agents. The absence of acetanilid, acetphenetidin, alkaloids, ammonium salts, benzoates, caffein, citrates, heavy metals, hexamethylenamin, magnesium, potassium, salicylates and sugars was demonstrated by appropriate tests. The presence of a carbonate (probably in the form of a bicarbonate), a phosphate, a sulphate, a chlorid, tartaric acid, sodium and traces of lithium was shown by qualitative tests.

"Quantitative analysis indicated that the composition of the specimens examined was essentially as follows:

Sodium phosphate, anhydrous	4.4 per cent.
Sodium sulphate, anhydrous	26.5 per cent.
Sodium tartrate, anhydrous	12.7 per cent.
Sodium bicarbonate	19.5 per cent.
Tartaric Acid, free	20.8 per cent.
Sodium chlorid	8.9 per cent.
Lithium phosphate	trace
Water of hydration (by difference)	7.2 per cent.

"From the results of the analysis, it appears probable that the composition of the mixture before 'granulation' was approximately as follows:

Sodium phosphate	4 per cent.
Sodium sulphate	25 per cent.
Sodium bicarbonate	30 per cent.
Tartaric Acid	30 per cent.
Sodium chlorid	8 per cent.
Lithium phosphate	trace
Water of hydration (by difference)	3 per cent.

"Sal Hepatica, therefore, is essentially an effervescing mixture of dried sodium sulphate (Glauber's salt) and sodium tartrate with a little dried sodium phosphate and table salt added. It is similar to the effervescent artificial Carlsbad Salt described in the National Formulary.

"In 1909 the *Druggists Circular* published the following analysis of Sal Hepatica:

Sodium phosphate	29.80 parts
Sodium sulphate (Glauber's salt)	26.27 parts
Sodium bicarbonate (baking soda)	18.00 parts
Sodium chlorid (salt)	13.05 parts
Lithium phosphate	0.04 parts
Citric and tartaric acids (to make 100)	12.84 parts

"A comparison of the recent analysis with the earlier one would seem to indicate that considerable changes have been made in the formula since the first examination. The proportions of sodium phosphate have been greatly reduced, while the sodium bicarbonate and tartaric acid have been increased and the citric acid entirely eliminated."

Sal Hepatica, then, is a simple effervescent saline laxative, essentially secret in composition and sold under claims that would be laughed at were the full formula of the product a matter of public knowledge. The following journals advertise this product:

Medical Woman's Journal	*Medical Times*
Southern California Practitioner	*American Medicine*
Therapeutic Gazette	*Medical Brief*
Western Medical Times	*Laryngoscope*
Memphis Medical Monthly	*Medical Record*
Archives of Pediatrics	*Medical Review of Reviews*
Eclectic Medical Journal	*New York Medical Journal*
Hahnemannian Monthly	*Medical Herald*
Journal of National Medical Association	*Chicago Medical Recorder*
International Journal of Surgery	*Medical Standard*
Medical Sentinel	*Southern Medicine and Surgery*
Indianapolis Medical Journal	*American Journal of Clinical Medicine*
Medical World	*Medical Summary*
Journal-Lancet	*Western Medical Review*
Medical Critic and Guide	*Albany Medical Annals*

MORE MISBRANDED NOSTRUMS

Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the United States Department of Agriculture

Euca-Mul.—The Edward G. Binz Co., Los Angeles, Cal., in December, 1920, shipped a quantity of Euca-Mul which the federal authorities declared misbranded. The federal chemists reported that analysis showed the preparation to consist essentially of oil of eucalyptus, sugars, glycerin, gum, water and alcohol. The preparation was labeled in part:

"Euca-Mul . . . in croup . . . bronchial asthma, tuberculosis, whooping cough and other throat and lung affections. . . .
"Relieves . . . bronchial asthma.
"Especially effective in cough of phthisis and whooping cough."

These claims were declared false and fraudulent "in that the said article contained no ingredient or combination of

1. Some of the Sal Hepatica advertising has claimed that it "is a saline combination with the addition of Sodium Phosphate and *Lithia Citrate*"

2. THE JOURNAL A. M. A., Feb. 7, 1914, p. 472.

ingredients capable of producing the effects claimed." In March, 1921, judgment of condemnation and forfeiture was entered and the Edward G. Binz Co., having entered an appearance as claimant, the court released the product to the company on payment of the costs of the proceedings and the execution of a bond, conditioned in part that the product be relabeled under the supervision of the Department of Agriculture.—[*Notice of Judgment No. 9338; issued Sept. 24, 1921.*]

Kalina Tablets.—A quantity of Kalina Tablets were shipped in part by J. M. Rutkowski, Buffalo, N. Y., and in part by the Kalina Co., Buffalo, N. Y., in May, October and December, 1920. The Bureau of Chemistry reported that analysis showed the tablets to consist essentially of plant extractives

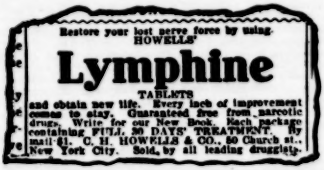
including cascara, aloes, pepper and strychnin. Some of the claims made on or in the trade package for these tablets were:

"Health Restorer For . . . Nervousness, Palpitation of the Heart, Female Troubles, Catarrh, Liver and Kidney Diseases, Headache."
"A Great Blood purifier."
"For Tired Feeling, Dizziness, Poor Appetite, Piles, Pimples on Face, Skin Troubles and all Blood Disorders."

These and a multitude of similar claims were declared false and fraudulent and in April, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9337; issued Sept. 24, 1921.*]

Howell's Lymphine Tablets.—In February and August, 1920, Charles H. Howell & Co., New York, shipped a quantity of Howell's Lymphine Tablets which the federal authorities declared were misbranded. An analysis made by the Bureau of Chemistry disclosed that the pills consisted essentially of iron (ferrous) carbonate, nux vomica, aloes, and phosphorus. Some of the claims made for these pills were:

"Restore nerve and brain tissues."
"Relieve all form of weakness . . . not only alleviate but in many cases cure mental and physical diseases . . . such as Neurasthenia or Nervous Prostration, Depleted Nerve Force, Impoverished or Impure Blood, Diseases of the Digestive or Eliminative System, Nervous Dyspepsia, Female Disorders attendant on the Change of Life, Irregularities of Uterine Troubles generally, etc."
"Improve vital powers in both sexes."
"Of inestimable value to sufferers from locomotor ataxia."



These claims, naturally, were declared false and fraudulent "in that the said article contained no ingredient or combination of ingredients capable of producing the curative and therapeutic effects claimed." In April, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9308; issued Sept. 24, 1921.*]

Wampole's Phosphorus, Nux and Damiana.—A quantity of a product labeled "Phosphorus, Nux and Damiana" consigned by Henry S. Wampole Co., Baltimore, and shipped in June and July, 1920, was declared misbranded. Analysis showed that the preparation consisted of the three drugs named. The charge of misbranding was brought because of the claims made for the preparation. The article was labeled in part:

"For an exhausted nervous system, Nervous weakness & Lost Vitality, Impotence, Insomnia, Hysteria, Nervous Depression and other Diseases of the Brain & Nerves Of Both Sexes."
"Renewing Strength, Restoring Lost Vitality and Increasing All The Physical Powers."

These claims were declared "false, fraudulent and misleading" and applied "with a knowledge of their falsity for the purpose of defrauding purchasers." In December, 1920, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9322; issued Sept. 24, 1921.*]

Correspondence

THE PREVALENCE OF INTESTINAL PROTOZOA AND RELATED ORGANISMS IN PORTO RICO

To the Editor:—During the summer of 1921, I had an opportunity to examine the stools of a number of natives in Porto Rico who were not suffering from intestinal disturbances and very few of whom had ever been away from the island. Specimens from fifty-five persons were obtained through the kindness of Drs. Hernández and Morales of the Sanidad in San Juan; from fourteen persons with the aid of Dr. R. B. Hill at Quebradillas, and from fourteen persons at the Presbyterian Hospital at Santurce. These specimens were examined within six hours after they were passed and usually within two hours. A small piece of fecal material was emulsified in distilled water on a slide, and nearby another portion of the stool was rubbed up in an aqueous solution of iodin with 2 per cent. potassium iodid. A single cover glass was then placed on the two drops. Living, motile organisms and cysts were looked for in the unstained area, and stained specimens in the portion mixed with the iodin solution. About fifteen minutes were devoted to the examination of each slide, and only one preparation was studied from each stool. By this method it was not expected that all the parasites present would be observed, since experience has shown that two, three or more samples must be examined from one case from stools passed at different times before the species of intestinal protozoa present can be determined with any degree of certainty; but a general idea of the prevalence of these organisms was obtained, and this was the object of the undertaking.

The number of persons examined was 83; the number found to be infected, 75. The organisms and the number of cases in which they were found were: *Blastocystis hominis*, 36; *Endamœba coli*, 30; *Endamœba histolytica*, 10; *Endolimax nana*, 6; *Iodamœba bütschlii*, 5; *Giardia intestinalis*, 8; *Trichomonas hominis*, 3; *Chilomastix mesnili*, 3; *Spirochæta eugyrata*, 1.

As might be expected from what we already know of intestinal protozoa, the motile flagellates were all found in loose stools. A rather large percentage of cases contained motile amebas mostly in formed stools. Of these there were five with *E. coli* and one with *E. histolytica*. Double and triple infections with different species of protozoa and with protozoa and worms of various species were the rule, but there was apparently nothing significant in the combinations observed.

The vital statistics of Porto Rico prepared by the commissioner of health include data that are of peculiar interest with relation to intestinal parasites. The commissioner's annual report indicates an average annual mortality of 24 per thousand inhabitants. Infant mortality accounts for 44.71 per cent. of the general mortality. This is due principally to four causes: (1) congenital debility, (2) rickets, (3) infantile tetanus and (4) enteritis, under 5 years. Diarrhea

and enteritis are the reported causes of almost one third of these deaths. The various types of enteritis are not distinguished in the commissioner's report, but the importance of this condition indicates a vital need for investigation. The situation is very favorable for the study of the relation of protozoa to intestinal disturbances which will help determine the degree of pathogenicity of the various species. It is hoped that some one will be able to take advantage of the wonderful opportunity presented by the prevalence of intestinal protozoa in Porto Rico to carry on investigations that may lead to a better knowledge of the rôle these parasites play in cases of diarrhea and enteritis, and to a general advance in the hygienic conditions on the island.

ROBERT W. HEGNER, PH.D., Baltimore.
Associate Professor of Protozoology,
School of Hygiene and Public
Health, Johns Hopkins University.

EARLY REFERENCES TO CANCER

To the Editor:—Cancer is not mentioned in the cuneiform texts. The Authorized Version has canker in 2 Tim. 2, 17: Their word will eat as doth a canker. The Latin Bible renders cancer, but the Greek original has gangrene, and this has been substituted for canker in the Revised Version. The Authorized Version gives gangrene in the margin. Greek γάγγραινα is derived from γραίειν, to eat, to gnaw. The Arabic names for cancer are saratân, which denotes a crab, and ákilah, which means eating. Sartân is used also in Syriac and modern Hebrew. In modern Arabic, ri'âyah is used for itching, gangrene and cancer. Some of the great Arabic dictionaries, which were compiled after the last crusade (1270), state that saratân is "a black-biliary tumor which begins like an almond, and smaller; and when it becomes large, there appear on it veins, red and green, resembling the legs of a crab (saratân). There is no hope for its cure; and it is treated medicinally only in order that it may not increase." They also say that "this disease sometimes affects a man in his fauces, having relation to the blood and resembling the dubâilah," (i. e., a perforating ulcer). "Some say it is the disease called dâ'-al-fil." (i. e., elephantiasis). We know now that the filarial form of elephantiasis is due to very slender parasitic worms (*Filaria sanguinis-hominis*). It may be spread by the agency of mosquitoes. The ancients could not distinguish between melanosarcoma, gangrene, noma, perforating ulcer of the foot, pachydermia, nevus araneus, etc.

In the story of the Egyptian plagues (which was written about 500 B. C.) soot is said to have produced swellings breaking into ulcers, not boils breaking forth with blains, as the Authorized Version renders in Exodus 9, 10. The English Bible also has ashes of the furnace instead of soot, but the word used in the Hebrew original means soot. The Greek Bible has αἰθάλη, soot. The epithelioma seen in chimney-sweeps is supposed to be due to the irritating action of soot on the skin But the sixth Egyptian plague was neither soot cancer nor bubonic plague nor smallpox nor anthrax (splenic fever); it refers to furunculosis orientalis, i. e., tropical ulcers on the face, neck, hands, arms and feet, known as Biskra button, Aleppo boil, Delhi sore, Bagdad date-mark, &c. They last about a year and leave ugly scars. They are due to minute parasites (*Helcosoma tropicum*) which are very similar to the Leishman-Donovan bodies constantly found in certain tropical fevers, especially in Indo-Burma. They seem to be transmitted by bedbugs. The Leishman-Donovan-Wright bodies were not discovered before the beginning of the present century. The words "and upon beasts" in Exod. 9, 9.10 represent a later addition.

PAUL HAUPT, Baltimore.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CONVERSE TREATMENT FOR EPILEPSY

To the Editor:—If you can, please advise me of the composition of the "Converse Treatment for Epilepsy" made by the Converse Co., 30 Smith Plane Ave., Columbus, Ohio; proprietor Herbert E. Sanderson.

R. W. THOMPSON, M.D., Wesleyville, Pa.

To the Editor:—The enclosed treatment for epilepsy was brought to my attention by one of my patients. Can you furnish me any information regarding the same?

C. M. SWINDLER, M.D., Pittsburgh.

To the Editor:—Please advise if you have any information concerning the Converse Treatment for epilepsy sold by the Converse Treatment Co., Columbus, Ohio. If you have no information concerning the above preparation please advise how I may obtain an analysis of the same.

C. A. DOUTHUT, Clayton, N. M.
Field Agent, U. S. Public Health Service.

ANSWER.—The Converse treatment, with a number of other alleged cures for epilepsy, was investigated a few years ago and an article published on this nostrum in the Propaganda department of THE JOURNAL, April 24, 1915. The matter has been reprinted in full in the pamphlet "Epilepsy Cures" (15 cents). A condensed report of the American Medical Association Chemical Laboratory on this preparation reads:

Essentially each 100 c.c. of the solution contains about 7.3 gm. ammonium bromid, 5 gm. calcium bromid and 8.7 gm. potassium bromid. Calculating from the bromid determination, each dose 1 teaspoonful (1 fluidram) contains the equivalent of 14.5 grains of potassium bromid, or each daily dose (4 teaspoonfuls) corresponds to 58.0 gr., potassium bromid.

RESULTS OF EXPOSURE TO OXYGEN DEFICIENCY

To the Editor:—I have read with interest and appreciation Haggard and Henderson's article on "The Treatment of Carbon Monoxid Poisoning" (THE JOURNAL, Oct. 1, 1921, p. 1065). While it covered very completely the stage or condition of poisoning that it was intended to cover, namely, asphyxia, there has come under my observation another stage or sequela of carbon monoxid poisoning concerning which there is practically no information to be had, either in textbooks or medical journals. Either this condition referred to does not exist pathologically, or else no effort by those competent to do so has been made to discover it. The symptomatology is the best description of this form of apparent monoxid poisoning that I am able to give.

Before going farther with this subject, I should state that Pittsburg is in the center of the large Kansas coal field, employing in this district approximately 12,000 coal diggers. Many cases of gas poisoning occur here annually and are of two varieties; monoxid poisoning following explosions which occur quite frequently during the fall, winter and spring, and which are usually fatal, and dioxid poisoning, which is occurring almost constantly in spite of the most approved methods of ventilation. Men work in the latter form of poisoned air for days, sometimes weeks, leaving the mine, at the end of the day's work, with a splitting headache and sometimes slight nausea, which wears off during the night, the man returning again in the morning to his work only to repeat the same experience; at length, he becomes incapacitated for work and about this time he consults the physician. His symptoms, varying according to the length of time the exposure has existed, almost always include headache, coated tongue, loss of appetite, and constipation. There is usually trembling of the fingers and tongue, when the latter is protruded. Almost all of these patients suffer from dyspnea, and this is true even when careful auscultation fails to discover râles in the lungs or valvular lesion of the heart. There is seldom pain anywhere, the most frequent and persistent subjective symptoms being weakness and inability to work; these symptoms continue for weeks and months in men who, up to the time of exposure to the poison, had reputations for energy and industry, and took pride in the large amount of coal they could produce. Some of these patients present a condition very much like miasmatic or malarial poisoning, but antimalarial agents do them no good, although there is plainly derangement of the liver, spleen and the digestive organs generally.

Is there a special or peculiar pathology following prolonged exposure to poisonous gas, and is it to be found in the blood, nerve centers or elsewhere?

A. J. DODDS, M.D., Pittsburg, Kan.

ANSWER.—It is probable that when our correspondent speaks of carbon dioxid poisoning he refers to what miners call "black damp." "Black damp" was formerly supposed to owe its effects chiefly to carbon dioxid. It has been shown, however, that these effects are in reality much more largely due to deficiency of oxygen. "Black damp" is essentially air in which by various chemical processes (reaction with iron pyrites, coal, etc.) the oxygen has been greatly reduced. In

some cases "black damp" contains very little carbon dioxid. The effects of breathing "black damp" or air deficient in oxygen are essentially like those due to sudden exposure to great altitude, as in the case of aviators and mountaineers, and like those of considerable but not fatal carbon monoxid absorption in the blood. The clear description given by our correspondent of the signs and symptoms induced by prolonged daily exposure to oxygen deficiency leaves little to be added. It is a condition both in miners and in aviators remarkably like the staleness or overtraining of an athlete. It is an asthenic disorder in which the physiologic conditions are incompletely and the pathologic conditions almost completely unknown. In England experiments have been tried, with some apparent success, in which patients suffering from this disorder were kept for several days or weeks in a cabinet in which the air was enriched with oxygen. Rest and symptomatic treatment are, however, all that present knowledge indicates as generally applicable.

TREATMENT OF PSORIASIS

To the Editor:—Please let me know through Queries and Minor Notes what is considered the "latest" as to the etiologic factors in the causation of psoriasis. Is there anything "new" in treatment?

G. C. GILES, M.D., Oakland, Iowa.

ANSWER.—There is nothing new in the treatment of psoriasis that justifies hope that we have made any advance. The most satisfactory are the old methods of treatment with tar, chrysarobin, and ammoniated mercury that have been in use for many years.

MICAJAH WAFERS—ALCRESTA LOTION—STABLE SOLUTION OF STRYCHNIN—GOFFE OPERATION FOR UTERINE PROLAPSE

To the Editor:—1. What is the composition of Micajah's Uterine Wafers? Could a preparation of this class be of any benefit? Also Alcresta Lotion.

2. Please give an aqueous vehicle for dispensing strychnin that will not readily be decomposed.

3. In which issue of THE JOURNAL is the Goffe operation for uterine prolapse and cystocele described? If not in THE JOURNAL, in which other publication?

L. T. A. HOTTEN, M.D., Paris, Idaho.

ANSWER.—1. Micajah's Medicated Wafers (formerly called "Micajah's Medicated Uterine Wafers") were analyzed in the American Medical Association's Chemical Laboratory in 1910. They were found to consist essentially of dried "burnt" alum, boric acid and borax in about the following proportions:

Alum (dried)	59.9 per cent.
Borax (dried)	15.6 per cent.
Boric acid	5.7 per cent.
Water of hydration	18.8 per cent.

In 1919 the Council on Pharmacy and Chemistry (THE JOURNAL, Nov. 29, 1919, p. 1715), in reporting on this product, showed that whatever virtues might be possessed by the proprietary are those inherent in such well known astringents as alum, boric acid and borax. "Micajah's Medicated Wafers" are an excellent example of mischievous proprietary medicines. Physicians using this will be likely to overlook or pass over new growths, specific infections and diseases that require radical remedial measures.

According to a circular in our files, "Alcresta Dental Lotion-Lilly" contains "Emetin, the active amebicidal principle of Ipecac, together with Benzoic Acid, Thymol, Eucalyptol and Aromatics." The theory that emetin is an active amebicide against pyorrhea alveolaris has been exploded. In this connection it is interesting to note that the firm does not list the product in the latest catalogue in our files.

2. Strychnin sulphate is stable in aqueous solutions; at times it may be advisable to acidulate the solution slightly with diluted sulphuric acid in order to overcome alkalinity of the glass container which might precipitate the free alkaloid.

3. Goffe's operation for uterine prolapse and cystocele was described in THE JOURNAL, Sept. 3, 1898, p. 508; *Tr. Am. Gynec. Soc.* **22**:235, 1897; *Am. J. Obst.* **35**:865, 1897; *Med. News* **71**:361, 1897; *Am. Gynec. & Pediat.* **11**:825, 1897; *Tr. Am. Gynec. Soc* **27**:107, 1902; *Am. Gynec.* **1**:355, 1902.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 8-9. Sec., Reg. Bd., Dr. J. W. Walker, Fayetteville; Sec., Homeo. Bd., Dr. Geo. M. Love, Rogers; Sec., Eclectic Bd., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith.

CONNECTICUT: Hartford, Nov. 8-9. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford.

CONNECTICUT: New Haven, Nov. 8. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

DELAWARE: Wilmington, Dec. 13. Sec., Reg. Bd., Dr. P. S. Downs, Dover; Sec., Homeo. Bd., Dr. H. W. Howell, 824 Washington St., Wilmington.

IOWA: Des Moines, Nov. 1-3. Sec., Dr. Guilford H. Sumner, Capitol Bldg., Des Moines.

KENTUCKY: Louisville, Dec. 6. Sec., Dr. A. T. McCormack, 532 W. Main St., Louisville.

MAINE: Portland, Nov. 8-9. Sec., Dr. Frank W. Searle, 775 Congress St., Portland.

MARYLAND: Baltimore, Dec. 13. Sec., Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.

MASSACHUSETTS: Boston, Nov. 8-10. Sec., Dr. Walter P. Bowers, State House, Boston.

NEBRASKA: Lincoln, Nov. 14-16. Sec., Mr. H. H. Antles, Capitol Bldg., Lincoln.

NEVADA: Carson City, Nov. 7. Sec., Dr. Simeon L. Lee, Carson City.

NORTH CAROLINA: Greensboro, Dec. 3. Sec., Dr. Kemp P. B. Bonner, Morehead City.

OHIO: Columbus, Dec. 7-9. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

SOUTH CAROLINA: Columbia, Nov. 8. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TEXAS: Dallas, Nov. 15-17. Sec., Dr. T. J. Crowe, 918-19 Dallas County Bank Bldg., Dallas.

VIRGINIA: Richmond, Dec. 13-16. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

Montana April Examination

Dr. S. A. Cooney, secretary, Montana State Board of Medical Examiners, reports the written examination held at Helena, April 5-7, 1921. The examination covered 10 subjects and included 50 questions. An average of 75 per cent. was required to pass. Of the 9 candidates examined, 8 passed and 1 failed. Two candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College		(1921)	87.6, 89.1
University of Maryland		(1911)	80.8
John A. Creighton Medical College		(1917)	83
Baylor University		(1920)	90.4
Milwaukee Medical College		(1903)	82.3
Wisconsin College of Physicians and Surgeons		(1902)	80.2
University of Naples		(1897)*	77.6
	FAILED		
Northwestern Medical College, St. Joseph		(1893)	59
College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University		(1920)	Washington
Columbia University		(1905)	Washington

* Graduation not verified.

Ohio May-June Examination

Dr. H. M. Platter, secretary, Ohio State Medical Board, reports the oral, written and practical examination held at Columbus, May 31 to June 3, 1921. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 186 candidates examined, 177 passed and 9 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University		(1920)	81.3
Northwestern University		(1921)	81
Johns Hopkins University		(1920)	75.4, 79.9
Harvard University		(1920)	87.7
St. Louis University School of Medicine		(1921)	78
Eclectic Medical College		(1921)	75, 76.4, 76.8, 77.5, 77.9, 78.3, 78.7, 78.8, 79.8, 80.3, 80.4, 80.5, 81, 81.6, 82.2, 82.9, 83, 83.2, 83.4, 84.8, 85.9, 86.2, 86.2, 87, 89.7
Ohio State University College of Homeopathic Med.		(1921)	76.1, 81.8, 82.6, 83, 83.8, 84.2, 87.1
Ohio State University College of Medicine		(1917) (1921)	83.5, 79.3, 79.3, 80.5, 80.8, 82.2, 82.5, 82.7, 82.9, 83.1, 83.2, 83.3, 83.4, 83.6, 83.9, 84.2, 84.3, 84.5, 84.5, *84.5, 84.6, 84.7, 84.8, 85, 85.1, 85.3, 85.5, 85.7, 85.7, 86.3, 86.9, 87, 87.1, 88.5, 91, 92.6
University of Cincinnati College of Medicine		(1921)	77.1, 77.3, 77.5, 78, 78.2, 78.2, 78.9, 78.9, 79.3, 79.4, 79.4, 79.9, 80, 80.1, 80.2, 80.3, 80.3, 80.3, 80.4, 80.5, 80.5, 80.7, 80.8, 81.5, 82, 82, 82, 82, 82.2, 82.3, 82.4, 82.5, 82.7, 82.7, 82.9, 82.9, 83.1, 83.1, 83.1, 83.1, 83.4, 83.5, 83.8, 84.6, 85.2, 85.7, 85.7, 88, 89.8, 90.3

Western Reserve University	(1919)	84.3, (1920) 83.2, (1921) 77.6, 78.4, 78.6, 80.1, 80.9, 81.2, 81.7, 81.8, 81.9, 82, 82, 82.3, 82.3, 83.3, 83.4, 83.6, 84.3, 84.7, 84.7, 85, 85.5, 86, 86.2, 86.4, 86.7, 86.9, 86.9, 87, 87.2, 87.2, 87.5, 87.8, 92
Hahnemann Med. College and Hosp. of Philadelphia	(1920)	80.7
Jefferson Medical College	(1920)	77.9
Temple University	(1919)	76
University of Pennsylvania	(1916)	80.5
University of Pittsburgh	(1920) 76.5, (1921)	82.7, 87.1
Woman's Medical College of Pennsylvania	(1920)	82.9, 88.4
Meharry Medical College	(1921)	77.2
Medical College of Virginia	(1920)	77.6
University of Toronto	(1920)	82
University of Budapest	(1896)* 75** (1912)* 75† (1914)* (1916)* 80.7, (1917)* 75.6	75.8,
University of Padua	(1918)*	75

FAILED

Loyola University	(1918)	66.7
Eclectic Medical College, Cincinnati	(1921)	69.2, 73.6
Meharry Medical College	(1918) 68.3, (1920) 69.8, (1921)	67.2
National University, Athens	(1913)*	64.1
University of Budapest	(1917)*	65.3
University of Palermo	(1918)*	57.4

Dr. H. M. Platter also reports that 32 candidates were licensed by reciprocity at the meeting held July 5, 1921. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of California		(1907)	Oklahoma
Hahnemann Medical College and Hospital of Chicago		(1919)	Illinois
Illinois Medical College	(1902) Mississippi,	(1905)	Illinois
Loyola University	(1919),	(1921, 2)	Illinois
Northwestern University		(1920, 2)	Illinois
Rush Medical College		(1906)	Illinois
College of Physicians and Surgeons, Chicago		(1909)	Illinois
American Medical College, Indianapolis		(1897)	Indiana
College of Physicians and Surgeons, Baltimore		(1887)	W. Virginia
University of Michigan Medical School		(1917), (1920)	Michigan
St. Louis University School of Medicine		(1920)	Missouri
Lincoln Medical College		(1910)	Nebraska
Columbia University		(1919)	New York
Medical Department of the University of the City of New York		(1877)	Missouri
Eclectic Medical Institute		(1908)	Indiana
Pulte Medical College		(1893)	Kentucky
Jefferson Medical College	(1902),	(1912)	Penna.
University of Pennsylvania		(1918)	Iowa
University of Pittsburgh	(1917),	(1918)	Penna.
Meharry Medical College	(1897) Arkansas, (1906) (1918) Kentucky, (1920, 2) Missouri		Alabama,
Medical College of Virginia		(1920)	Virginia

* Graduation not verified.
** 6.3 per cent. given for years of practice.
† 1.6 per cent. given for years of practice.

Nebraska June Examination

Mr. H. H. Antles, secretary, Department of Public Welfare, reports the written examination held at Lincoln, June 7-9, 1921. The examination covered 9 subjects and included 90 questions. An average of 70 per cent. was required to pass. Of the 72 candidates examined, 70 passed and 2 failed. The following colleges were represented:

College	PASSED	Year Grad.	Number Licensed
Hahnemann Medical College and Hospital of Chicago		(1901)	1
University of Illinois		(1921)	1
Creighton Medical College		(1921)	19
University of Nebraska		(1921)	46
Eclectic Medical College, Cincinnati		(1921)	1
Jefferson Medical College		(1920)	2

FAILED

Creighton Medical College	(1921)	2

Wyoming June Examination

Dr. J. D. Shingle, secretary, Wyoming State Board of Medical Examiners, reports the written examination held at Cheyenne, June 6-8, 1921. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the two candidates examined, 1 passed and 1 failed. Four candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Osteopath			80.5

FAILED

St. Louis College of Physicians and Surgeons	(1917)	*

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Little Rock		(1911)	Tennessee
Rush Medical College		(1876)	Iowa
Indiana University School of Medicine		(1919)	Indiana
Lincoln Medical College		(1898)	Nebraska

* No grade given.

Book Notices

ORTHOPAEDIC SURGERY OF INJURIES. By Various Authors. Edited by Sir Robert Jones, K.B.E., C.B., F.R.C.S., Director of Orthopaedics, St. Thomas's Hospital, Liverpool. Two volumes. Cloth. Price, $18. New York: Oxford University Press, 1921.

In these two volumes are described the growth and development, in the British orthopedic centers during the great war, of what has hitherto been termed orthopedic surgery, but which may now be better designated as reconstructive surgery. To the editor of this work, Sir Robert Jones, the British War Office assigned the task of developing these hospitals. The beginning was a 250-bed hospital. At the end of the war, there were 30,000 beds. With the development of this phase of work, it may be said that orthopedic surgery as a specialty or division of general surgery died and reconstructive surgery took its place. The result of what was learned by British reconstructive surgeons is contained in these two books. The first chapter of Volume I is devoted to a discussion, by Arthur Keith, of the principles and practice of Hugh Owen Thomas. Goldthwait of Boston contributes a chapter on the principles of orthopedic surgery as they apply to military needs. Jones writes on malunion of the femur, ankylosis, stiff joints and flail joints. His views are so well known that it is needless to repeat them here. Elmslie's chapter on amputations will appeal to surgeons. It is very full, although concise, and the subject matter is well illustrated. Lynn-Thomas describes the organization and equipment of centers for the limbless in England. The second volume is devoted to the discussion of injuries of the nerves, the head, the spine, functional and reflex disabilities, and the use of splints, plasters, electricity, massage, exercises and hydrotherapy in the treatment of orthopedic cases. It is interesting to note that the chapter on the scheme and organization of curative workshops is written by former King Manuel of Portugal, and is based on his activities during the war. The organization and administration of a military orthopedic hospital is described by Walter Hill, who was in charge of the military orthopedic hospital, Shepherd's Bush, London, during the greater part of the war. On the whole, this work is the result of extensive observation by men who were qualified, who were keen observers, and who were able to come to conclusions which cannot fail to be of value to any one who is interested in the rehabilitation of the physically incapacitated.

DIE RÖNTGENDIAGNOSTIK DER INNEREN ERKRANKUNGEN. Von Dr. Herbert Assmann, A. O. Professor der inneren Medizin, Oberarzt der Medizinischen Klinik in Leipzig. Paper. Price, 330 marks. Pp. 696, with 633 illustrations. Leipzig: F. C. W. Vogel, 1921.

The increasing tendency on the part of internists to equip themselves with facilities for roentgen-ray work renders it necessary for them to become acquainted with the various phases of roentgenology. The subject is so large and the literature so voluminous that it requires not only a large library, but, even more, considerable time, to go through the enormous literature and pick out what is of particular value in one's respective line. There are numerous books dealing with special phases of roentgenology, but this seems to be the first one sufficiently comprehensive to be of just the value to the internist that he would desire. The scope of the book is encyclopedic. Every subject that might be either directly or remotely connected with diseases of internal medicine is fully covered. Both the normal and the pathologic conditions are described. The subjects covered are: the heart and large blood vessels; the gastro-intestinal tract, including the liver, pancreas and spleen; pneumoperitoneum; the urinary tract, including pyelography; cranial and intracranial conditions; inflammatory and degenerative conditions of the osseous system. Considerable space is devoted to many of the borderline conditions, such as rickets, joint infections, bony changes in organic diseases of the nervous system, the chondrodystrophies and osteomalacia. There are countless illustrations in the nature of diagrams and reproductions, with twenty charts all excellently done and accompanied by complete descriptive legends. There are numerous citations of cases, both of the author and of others. There is an

extensive bibliography of European sources, mostly German; there are few references to American writers, and none at all later than 1913. Considerable stress is laid on the rôle of the blood vessels as furnishing the shadows in the normal lungs. Assmann will not accept the roentgenologic evidence of tuberculosis without a knowledge of the clinical course. While the Dunham tree is mentioned, the name of Dunham is omitted. Experience in the army has led the author to conclude that in no case in which a history of previous infection was not given was a large heart found, in the soldiers he examined. There is a large table giving the maximum, average and minimum size of the normal heart. Contrary to the opinion of many roentgenologists, he does not believe that stasis in the appendix without local tenderness is an evidence of a diseased condition. He does not lay much stress on the indirect evidences of ulcer. It is rather surprising that in his vast experience the author has not encountered any case of carcinoma of the duodenum. It is unfortunate that scant attention is given to the subject of gastric syphilis, and no mention is made of the demonstration of a noncalculous gallbladder on the roentgenogram. The book is well written, the paper excellent, and in many instances summaries at the end of the chapters help to give the important points in a short space. The book can be highly recommended both for the internist, even though he does not do his own roentgenology, and for the trained roentgenologist.

DAS SPUTUM. Von Professor Dr. Heinrich von Hoesslin. Paper. Price, 148 marks. Pp. 398, with 66 illustrations. Berlin: Julius Springer, 1921.

This monograph covers the entire subject of the sputum with an accuracy and thoroughness that make it one of the most valuable additions the clinical laboratory has received in a long time. The accumulated information on the topic has been brought together with detail and care, and not only are known facts critically considered but details of technic for the demonstration of every fact, whether microscopic, bacteriologic or chemical, are fully presented, together with a complete bibliography; practically every contribution that bears even indirectly on the subject is made available. The only drawback to be mentioned is that as the book was prepared for publication in 1914, and has been delayed until now, in bringing it up to date not all of the contributions on the subject for the last few years have been included; but most of the oversights in this respect have not been important.

Medicolegal

Injury to Physician Being Taken to See Patient

(Pinchard v. Pease et al. (Wash.), 197 Pac. R. 49)

The Supreme Court of Washington, in reversing a judgment obtained by the plaintiff, a physician, and dismissing his action for damages for personal injuries, says that one of the defendants was the husband, and the other the son, of a woman who lay critically ill. In fact, her condition was such that both of the defendants were doubtful whether she would survive until a physician could come five miles to her bedside. The telephone service being interrupted, the elder Pease asked his son Hugh to take their automobile and get the plaintiff. The plaintiff, thinking that the trip could be made more quickly by getting into the defendants' car, did so. It was snowing, and about an inch of snow lay on the ground. There were no chains on the car, and the plaintiff testified that he would not have stopped to put them on his own car had he been driving it. At the end of about a mile of straight and hard-surfaced road, over which the plaintiff testified that the car went from 30 to 35 miles an hour, there was a curve leading to the approach to a bridge, and after this curve had been partly turned the car skidded and went through the railing, and the accident occurred which resulted in the plaintiff's injury. The plaintiff's complaint was that Hugh Pease failed to slow down quickly enough for the turn and that this was negligence. The testimony was that as the curve was being entered the driver of the car applied the brakes, but, the road being more slippery than he had judged it to be, the speed of the car was not lessened as much as he had anticipated, although lessened to a considerable extent. Under the circumstances of the situation, it could not be said that the car, going at the rate of speed which was testified to until it reached the point near the place of the accident, was being driven in a reckless or careless manner. The degree of care which the driver of the car was called on to exercise should be measured by what a reasonable man would have done in the same circumstances. He had with him a medical man whose purpose was at one with his; that is, to reach the bedside of Mrs. Pease in the shortest possible time. They were engaged on the same errand. In this degree they were actuated by the same feeling, and to hold either one of them liable for negligence under these circumstances, the negligence must have been practically gross or wilful. The exercise of a fine and discriminating judgment in such circumstances is not practical nor obligatory. The driver cannot be said to have done differently than a reasonably prudent man would have done under the same circumstances. The curve was not a specially sharp one, and the speed at which the car was going was not excessive in view of the imperative nature of the errand, and an attempt was made to slacken speed at the curve. So far as the defendant's responsibility to the plaintiff was concerned, the court can find no act of negligence, and at most it was, as agreed by the plaintiff, the result of a mistake of judgment. The plaintiff, of his own volition, submitted to the judgment of Hugh Pease in the operation of the car. He acquiesced in the speed, which was not extraordinary under the circumstances. If he himself had been driving, he would have driven as fast. It may be that he would have exercised his judgment in a better way in slowing down for the curve, because the necessity of the situation might have appealed differently to him, accustomed as he was in the practice of his profession to the presence of similar dangers, and because of the fact that it was not his mother who was on the point of death. This the plaintiff knew when he entered the car. He knew the state of mind that Hugh Pease must be in, and yet acquiesced in the manner of the driving, and for what at most may have been a mistake of judgment he had no right to complain.

Errors of Surgeons No Defense for Wrongdoers

(Ryder v. Findlay (N. Y.), 187 N. Y. Supp. 579)

The Supreme Court of New York, Appellate Division, Second Department, affirms an order setting aside a verdict for the defendant and granting a new trial in this action to recover damages from the defendant for his alleged negligently causing the death of a man through a collision of automobiles, because the trial judge, when a juror asked, "Suppose we find that he would not have died except for the negligence of the physician?" replied, "If he would not have died except for the negligence of the physician, then there can be no recovery here against the defendant." The court says that this answer may have given an erroneous impression. The rule is that an original wrongdoer, whose acts inflict injuries that might result in death, is not relieved by errors of a surgeon or nurse in treatment of the injury. And this extends also to the criminal law. If a felonious assault is operative as a cause of death, the causal cooperation of erroneous surgical treatment does not relieve the assailant from liability for the homicide.

Society Proceedings

COMING MEETINGS

American Child Hygiene Association, New Haven, Conn., Nov. 2-5.
American Public Health Association, New York, Nov. 14-18.
American Society of Tropical Medicine, Hot Springs, Ark., Nov. 14-15.
Hawaii, Medical Society of, Honolulu, Nov. 21.
Porto Rico, Medical Association of, San Juan, Dec. 10-11.
Radiological Society of North America, Chicago, Dec. 7-9.
Southern Gastro-Enterological Association, Hot Springs, Ark., Nov. 14-17.
Southern Medical Association, Hot Springs, Ark., Nov. 14-17.
Southern Surgical Association, Pinehurst, N. C., Dec. 13-15.
Tri-State District Medical Society, Milwaukee, Wis., Nov. 14-17.
Western Surgical Association, St. Louis, Dec. 9-10.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

October, 1921, **22**, No. 4

*Metabolism Studies in Infants Suffering from Chronic Nutritional Disturbances (Athrepsia). K. Utheim, St. Louis.—p. 329.
*Etiology of Hemorrhagic Diseases of New-Born. C. F. Gelston, San Francisco.—p. 351.
*Severe Infantile Malnutrition. Energy Metabolism with Report of New Series of Cases. F. B. Talbot, Boston.—p. 358.
*Food Requirements of Children. II. Protein Requirement. L. E. Holt and H. L. Fales, New York.—p. 371.
Capillaries of Normal Infant. K. M. Mayer, Chicago.—p. 381.
Orthostatic Albuminuria. H. Saito, Nagasaki, Japan.—p. 388.
*Incidence of Hereditary Syphilis. P. C. Jeans and J. V. Cooke, St. Louis.—p. 402.
*Calcification of Skin in a Child. J. L. Morse, Boston.—p. 412.
Review of Literature of 1920 on Genito-Urinary Conditions in Children. L. W. Hill, Boston.—p. 417.

Metabolism Studies in Infants.—Utheim deals with that chronic condition of extreme malnutrition of infants which occurs independently of known infection and is not accompanied by acute gastro-intestinal or nervous symptoms. Experiments were made to determine what changes may take place in the intermediary metabolism of infants suffering from athrepsia. A diminished capacity of the organism to bring about such oxidations as the transformation of benzol to phenols was found. In the urine of athreptic infants the caloric nitrogen and carbon nitrogen ratios are high as compared to normal infants. There is no increase in the urinary excretion of creatinin, uric acid or amino-acid nitrogen in the urine of athreptic infants. During the severe stages of athrepsia there is an increased excretion of organic acids in the urine (as determined by titration). The ammonia excretion in the urine of athreptic infants is in a general way proportionate to the amount of organic acids present. With improvement in the nutritional condition the excretion of organic acids and of ammonia decreases. The organic acids in the urine of athreptic infants are for the greater part insoluble in ether. There is a greatly increased loss of food material in the stools during the severe stages of athrepsia. This loss as determined by the bomb calorimeter may be as great as 26 per cent. of the food intake. With improvement in the nutritional condition of the infant the utilization of food is much greater.

Etiology of Hemorrhagic Disease of New-Born.—In the case reported by Gelston, it was possible to demonstrate at the time of the hemorrhage a practical lack of prothrombin. Within eight hours after the cessation of the hemorrhage, prothrombin. Within eight hours after the cessation of the hemorrhage, prothrombin was present in normal quantities. The child was 3 days old. The clotting time of the whole blood was seventy minutes; recalcified plasma, 105 + minutes. Three injections of citrated whole blood were given, one of 10 c.c. into the buttocks, two hours after entry, one of 8 c.c. into the longitudinal sinus, and one of 35 c.c. into the same vein, at half hour intervals. The bleeding was then effectually checked. Eight hours after injection of the blood, the clotting time of the patient's whole blood was eighteen minutes; clotting time of whole blood of the control was seven minutes; clotting time of recalcified plasma of patient was normal; clotting time of recalcified plasma of control was normal. The baby was discharged in good condition on the third day. At no time was there evidence of hemorrhage from the mucosa or elsewhere.

Metabolism in Malnutrition.—Talbot's observations were to the effect that there is no appreciable change in the metabolism of cases of severe malnutrition until there is a loss of 20 per cent. in the body weight. Beyond this point there is presumably a loss of subcutaneous fat and a larger body surface in relation to the body weight. With increasing malnutrition the divergence from the normal becomes greater and body heat is lost more easily because of the lack of the insulating layer of subcutaneous fat and of the greater radiation of heat due to the relative increase in body surface as compared to the weight. When the heat loss becomes greater than the heat production the temperature becomes subnormal. This condition can only be remedied by the application of enough external heat to make up for the loss. The basal metabolism per kilogram of body weight is higher in infants with severe malnutrition than in normal average infants, being higher the greater the degree of malnutrition.

Food Requirements of Children.—The average amount of protein taken in the usual mixed diet by over 100 healthy children ranged from 44 gm. daily in the second year to 130 gm. daily in the fifteenth year. The latter figure exceeds the average adult need and obviously should do so, since adults require protein for maintenance only. The amount of protein per kilogram of body weight taken by these children averaged about 4 gm. at 1 year, diminished to about 2.6 gm. at 6 years and remained at about this value until the end of growth. The children studied by Holt and Fales took about two thirds of their protein as animal protein and one third a vegetable protein.

Incidence of Hereditary Syphilis.—A study of the placenta and the Wassermann reaction on the cord blood was made by Jeans and Cooke on a series of 2,030 unselected infants in St. Louis. By examining the blood of 389 of these infants after 2 months of age, it was determined that the proportion of cases of hereditary syphilis that could be certainly diagnosed by placental examination alone was 27 per cent. while from the Wassermann reaction on the cord of blood, 63.6 per cent. of the cases could be recognized. By applying these two methods to the entire series the number of cases of hereditary syphilis in the whole group was determined. The incidence of hereditary syphilis established by this method is 15 per cent. in the colored race, 1.8 per cent. in the poor of the white race and less than 1 per cent. in the well-to-do social classes. By applying these figures to the entire population of St. Louis, it is estimated that the incidence of hereditary syphilis at birth in this city is 3 per cent., of which the colored population, although only 9 per cent. of the total, contributes approximately half the cases.

Calcification of Skin in Infant.—The history in Morse's case suggests strongly that the changes in the skin were due to infection. The histology shows no evidence, however, that an infectious process was the cause of the lesions in the subcutaneous fat. The microscopic appearances resemble in many particulars the fat necroses found in the abdominal cavity in acute pancreatitis where the lesion is, of course, due to the action of a lipolytic ferment. In spite of the difficulty in accounting for the presence of such a ferment in the subcutaneous tissue, such a possibility must be considered in this instance.

American Journal of Psychiatry, Baltimore

July, 1921, **1**, No. 1

Platelet Count and Bleeding Time in Catatonic Dementia Praecox. S. Uyematsu, Hathorne, Mass.—p. 15.
Reaction in Dementia Praecox to Intravenous Administration of Non-Specific Protein. T. Raphael and S. Gregg, Kalamazoo, Mich.—p. 31.
Connotations as Factor in Mental Health of Community. D. A. Laird, Iowa City.—p. 41.
Psychologic Traits of Southern Negro: His Psychoses. W. M. Bevis, Washington, D. C.—p. 69.
Control of Communicable Diseases in Psychiatric Hospitals. E. B. Saye, Harrisburg.—p. 79.
Recreation for Mental Cases. R. F. L. Ridgway, Harrisburg.—p. 87.

American Journal of Public Health, Chicago

September, 1921, **11**, No. 9

Measles and Its Allies. J. G. Cumming, Ann Arbor, Mich.—p. 785.
Tobacco in Its Relationships to Public Health. P. K. Holmes, Lexington, Ky.—p. 793.
County Health Administration in Los Angeles County. J. L. Pomeroy, Los Angeles, Calif.—p. 796.
Virginia Plan of Cooperative County Health Work. W. F. Draper, Richmond, Va.—p. 801.
Relations of Society to Drug Habit. P. H. Bryce, Ottawa, Can.—p. 812.
Hand Disinfection Investigation of Various Preparations. J. R. Conover and J. L. Laird, Philadelphia.—p. 816.
Measuring Rods of Mortality Rates. D. M. Lewis, Charleston, W. Va.—p. 825.
Industrial Application of Army and Navy Venereal Disease Records. R. H. Everett and M. A. Clark, New York.—p. 829.
Influence of Peptone on Indol Formation by Bacillus Coli. F. W. Tilley, Washington, D. C.—p. 834.

October, 1921, **11**, No. 10

School Health Service in New York State. W. A. Howe, Albany.—p. 873.
Report of Committee on Medical Service of State and Provincial Health Authorities of North America. M. Nicoll, Jr., New York.—p. 888.
Unsolved Problems of Preventive Medicine. A. Arkin, Morgantown, W. Va.—p. 894.
Report of Committee on Full-Time Health Officer Legislation. E. R. Kelley, Boston.—p. 902.
Infant Mortality Rates for Paris. T. J. Duffield.—p. 905.
Theories Concerning Causation of Disease. L. W. Feezer, Minneapolis.—p. 908.
*Prophylaxis of Whooping Cough. M. D. Miller, Akron, Ohio.—p. 913.
Health Centers as Seen by Public Health Nurse. E. Ross, New Haven.—p. 915.
Third Measuring Rod in Mortality Rates. D. M. Lewis, Charleston, W. Va.—p. 917.
Sanitary Control in Manufacture of Foods and Its Economic Importance. G. Grindrod, Chicago.—p. 920.
Sanitation of Fruit and Vegetable Canneries. H. M. Miller, Los Angeles.—p. 922.

Prophylaxis of Whooping Cough.—Miller urges immunization of children against whooping cough. In Akron, Ohio, use was made of a bacterin of a strength of 5 billion Bordet bacilli to 1 c.c. in doses of 2½ billion followed by 4 billion three days later. In Miller's opinion the proper strength for either prophylaxis or treatment is at least 5 billion to the mil. Failures with Bordet bacillus in the treatment of cases are due entirely to insufficient dosage administered at too-long intervals. A safe principle in the use of whooping cough bacterin is, "the younger the child, the larger the dose required." However, no case has failed to respond if the injection was given not later than forty-eight hours after the preceding one and the dose doubled each time. Miller believes that public health authorities are justified in promoting immunization against whooping cough just as they are urging immunization against typhoid fever.

Boston Medical and Surgical Journal

Oct. 6, 1921, **185**, No. 14

Nontuberculous Pyelonephritis. A. H. Crosbie, Boston.—p. 397.
Subluxation of Shoulder—Downward. F. J. Cotton, Boston.—p. 405.
Mental Responsibility and Petty Crime. D. A. Thom, Boston.—p. 407.
Surgical Treatment of Ulcer and Cancer of Stomach. F. B. Lund, Boston.—p. 413.

Illinois Medical Journal, Oak Park

September, 1921, **40**, No. 3

*Taking of Temperature in Diagnosis and Treatment of Tuberculosis. G. T. Palmer, Springfield.—p. 161.
Epilepsy. J. C. Gill, Chicago.—p. 164.
Adiposis Dolorosa; Report of Cases. J. M. Neff, Chicago.—p. 169.
Capital Punishment the Parent of Lynching. G. F. Lyston, Chicago.—p. 178.
Lessons of World War for Internist. H. Brooks, New York.—p. 181.
*Cure of Cervical Endometritis by Aid of Multiple Scarification. H. T. Byford.—p. 187.
Insanity—A Quantitative Diagnosis. E. A. Foley, Chicago.—p. 189.
Injuries of Spinal Cord. L. J. Pollock and L. E. Davis, Chicago.—p. 191.
Syphilis of Stomach. A. A. Goldsmith, Chicago.—p. 197.
Etiologic and Therapeutic Considerations in Arthritis. G. Parker, Peoria, Ill.—p. 200.
Necessity for Antenatal Care in Obstetrics; Report of Cases. H. F. Lewis, Chicago.—p. 203.
*Incidence of History of Tonsillectomy in Two Series of Cases of Scarlet Fever. Is Tonsillectomy a Partial Prophylaxis? L. T. Gregory, Urbana.—p. 210.
Chronic Nephritis. W. A. Wiseman, Camargo.—p. 211.
Public Health Problems. C. W. Lillie, East St. Louis.—p. 213.
Occlusion of Left Posterior Inferior Cerebellar Artery; Report of Case. L. H. Anderson, Aurora.—p. 215.
Diagnosis of Late Hereditary Syphilis. B. B. Beeson, Chicago.—p. 218.
Medical Aspect of Aviation. C. M. Robertson, Chicago.—p. 222.
*Ulcer Cure Following Gastric and Duodenal Perforation. K. Meyer, Chicago.—p. 226.
Testicle Transplantation. Report of Case. C. M. McKenna, Chicago.—p. 228.
Improvement of Man and Higher Animals. C. L. Redfield, Chicago.—p. 230.
Venereal Wart Converted into Carcinoma by Cauterization. C. MacDonald, Chicago.—p. 233.

Temperature in Tuberculosis.—Palmer asserts that unfortunate results in the treatment of pulmonary tuberculosis are due in large measure to inaccuracy and neglect of very simple things and to no single factor so much as to the faulty taking and recording of temperature. With the diagnosis made, temperature is the determining factor in the classification of patients; in measuring the amount of rest and exercise; in prescribing the character and extent of occupational therapy; in regulating the administration of tuberculins, vaccines and other specific medication, and, finally, in settling the most important of all questions—the quiescence and arrest of the process and the discharge of the patient. In spite of all this, Palmer says, 80 per cent. of tuberculous patients under medical care are handled and discharged without definite knowledge as to whether they are febrile or afebrile. If this rather sweeping assertion can be substantiated, the large number of reactivations after discharge should not be regarded with any degree of surprise; but should be looked upon as the result naturally to be expected.

Multiple Scarification in Cervical Endometritis.—The treatment Byford advocates is not new. It consists in using the old treatment in a way that makes it efficient. The puncturing of follicles becomes a multiple deep scarification and the local stimulation becomes a semicautery. Instead of using the scarificator only when cysts are discovered, from fifty to 100 punctures into the diseased area or areas are made at short regular intervals, viz., from once to twice a week. This not only evacuates follicles that cannot be felt, but it makes openings into the infiltrated area about the follicles into which the antiseptic and stimulating application can penetrate. The application is strong enough to destroy or cause atrophy of what remains of the epithelial cells in glands that are already seriously damaged by inflammatory action, but is not strong enough to destroy functioning glands that are supported by an unobstructed capillary circulation. The scarificator Byford uses is bayonet pointed and cuts in three directions, and thus leaves patulous openings for the escape of mucus and the penetration of the solution. The solution consists of one part each of iodin crystals and glycerin and two parts of phenol. For an area of almost complete degeneration the relative amount of the iodin is doubled in order to obtain quicker and somewhat more radical results.

Tonsillectomy as Prophylactic Measure Against Scarlet Fever.—Of sixty-two cases of scarlet fever in only four had tonsillectomy been performed previous to the onset of the scarlet fever. Three of these cases showed clinical evidence that tonsillectomy had not been complete. In a second series of twenty-five cases of scarlet fever, there were twenty with no tonsillectomy, two with tonsillectomy, and three showing no record. Gregory raises the question of the possibility that tonsillectomy may be at least a partial prophylaxis against scarlet fever.

Cure of Gastric Ulcer Following Perforation.—A study made by Meyer of fifteen patients after operation shows that a gastro-enterostomy is not essential to the healing of perforated ulcer, and that the percentage of postoperative gastric symptoms is far lower than after operation for nonperforative ulcer. From the clinical evidence and reasoning by analogy, Meyer says one can accept the observations of Balfour that artificial perforation and excision by cautery presents a very logical procedure in the cure of gastric and duodenal ulcer. Resection of the ulcer when a cure cannot be obtained under ulcer management has also proved to be of great benefit, but possesses added dangers to artificial perforation with the cautery.

Indiana State Medical Association Journal, Fort Wayne

July 15, 1920, **13**, No. 7

*Unusual Case of Temporary Incarceration of Transverse Colon within Bilateral Hernal Sacs. D. J. Royer, Fort Wayne.—p. 227.
Epidemic Encephalitis in Northern Indiana. R. V. Hoffman, South Bend.—p. 228.
Physician: Training of an Intern. F. B. Wynn, Indianapolis.—p. 232.
Acute Appendicitis. R. C. Ottinger, Indianapolis.—p. 235.
Autogenous Bone Graft. L. T. Rawles, Fort Wayne.—p. 238.

Incarceration of Transverse Colon in Hernial Sac.—Royer cites the case of a man who complained of "stomach and bowel trouble" dating back twelve or fifteen years. He had no gastric or intestinal symptoms, but complained of a feeling of distress in the left side of his abdomen in the left lumbar region. He said there was something in there that would not let the food pass out of his stomach. He had no constipation, yet he said the stool was very small. At a variable time after eating this distress would come on and he

would have to use an enema to obtain relief. On physical examination nothing of note was discovered. Roentgen-ray examination of the gastro-intestinal tract revealed a large stomach, centrally located, with the greater curvature two fingers breadth below the level of the iliac crests. There was hypoactivity. No filling defect was noted. The stomach was freely movable and not tender to pressure. At the twenty-four hour period the large bowel was filled from the cecum to the left extremity of the transverse colon. There was a rather small amount of barium in the descending colon and sigmoid, but the splenic flexure was not filled. On first sight, with the patient behind the vertical fluoroscope, the transverse colon appeared markedly dropped and manipulation was attempted to ascertain the degree of mobility. Instead of displacing the intestine upward as anticipated, it was found to be firmly bound down behind the pubes. On digital examination bilateral herniae were found. At the forty-eight hour period there was a considerable residue in the transverse colon; the remainder of the tract was empty. At the end of a week, the greater part of the time having been spent in bed, he was given another barium meal to study further the incarcerated colon, and to determine accurately the degree of stasis present. The upper alimentary tract showed practically the same condition as noted on the first examination. At the twenty-four hour period, instead of finding the expected condition, the transverse colon was found in a practically normal position with no evidence of the hernias. At the end of forty-eight hours the entire tract was empty.

Johns Hopkins Hospital Bulletin, Baltimore

October, 1921, **32**, No. 368

*Swelling of Arm After Operations for Cancer of Breast: Elephantiasis Chirurgica. W. S. Halsted, Baltimore.—p. 309.
Studies on Blood. Vitally Stainable Granules as Specific Criterion for Erythroblasts and Differentiation of Three Strains of White Blood-cells as Seen in Living Chick's Yolk Sac. F. R. Sabin, Baltimore.—p. 314.
Oxidation Mechanisms of Cell. F. G. Hopkins, Baltimore.—p. 321.
Nonlipoid Components of Blood Serum in Relation to Its Antihemolytic Property. H. M. Clark, R. H. Zinck and F. A. Evans, Baltimore.—p. 328.
*Nucleus in Human Restiform Body. K. Hirose, Okayama, Japan.—p. 336.

Elephantiasis Chirurgica.—Halsted is convinced that swelling of the arm follows the plastic operations for breast cancer in greater proportion and in more pronounced form than is seen in the cases treated by skin grafting. And, morever, in the skin grafting operations, done by Halsted as far back as 1895, conspicuously swollen arms became almost a thing of the past after the method of pressing back the flaps at the upper part of the wound, and stitching their edges to the underlying intercostal muscles was adopted. Halsted asserts that the records support this view that infection is very frequently, if not indeed usually, the overlying cause of the swelling of arms whose main lymphatic channels have been more or less blocked by operation. The infection may quite conceivably be so mild in degree as to escape the observation even of those intently on the lookout for it. If this view expressed by Halsted as to the cause of the swelling of the arm following operations on the axilla should prove to be correct he says, the term surgical elephantiasis (elephantiasis chirurgica) might be an appropriate one. The most common cause of the late postoperative swelling is, of course, the recurrence of the disease, a recurrence which blocks new channels. But swelling in its most aggravated form is seen with the recurrences accompanied by inflammation—it may be only the reactive inflammation incident to the rapidly growing neoplasm. The question presents itself as to whether the reactive inflammation in some of these recurrent cases may not be partly of bacterial origin—an inflammation superimposed on the tissues engorged from lymphatic and frequently also from venous obstruction. Lymphatic obstruction predisposes to streptococcal inflammation.

Nucleus in Human Restiform Body.—In thirteen human brains examined by Hirose, there was a peculiar nucleus, which, in transverse sections, appears in the dorsomedial part of the restiform body and is present in both embryonic and adult specimens. The inferior border of this nucleus is seen in the restiform body, about the level of the posterior vagoglossopharyngeal roots, and its superior border disappears just as or after accessory auditory nucleus appears. Hence its longitudinal diameter is greater than the transverse, and averages in length about 0.5 to 1.3 mm. The hilum of the nucleus is directed mesially, when it is well developed. In most cases, however, it is either absent or very indefinite, and the nucleus itself is also in an undeveloped stage, appearing in transverse sections as a small round or elliptical mass. The following are the characteristics common to all the cases: (1) The situation of the nucleus in the restiform body is the same in all cases. (2) In transverse sections, when the nucleus appears elongated, the long axis runs always in a dorso-medial-ventrolateral direction. (3) When the nucleus appears elongated in transverse sections, it is curved and shows an incomplete hilum. (4) The type of nerve cells in the nucleus is the same for all cases. The type of cell found in this nucleus is similar to that of the inferior olive. The brains of certain other mammals, for instance, the monkey, dog, cat, rabbit and guinea-pig were used for similar studies, but in these thorough examination failed to reveal any such nucleus in the restiform body. Hence, it is possible that this nucleus is peculiar to the human species. The physiology of the nucleus and its relation to the other parts of the brain are entirely unknown.

Journal of Immunology, Baltimore

July, 1921, **6**, No. 4

Test Tube Rack for Serologic Work. O. Deibert, New York.—p. 249.
Immunologic Experiments with Catalase. T. C. Burnett and C. L. A. Schmidt, Berkeley, Calif.—p. 255.
Value of Tissue Extracts of Virus Pigs in Production of Anti-Hog Cholera Serum. T. P. Haslam.—p. 263.
Agglutinative and Hemolytic Action of Calf Serum on Sheep Cells. F. Maltaner and E. Johnston, Albany.—p. 271.
Immunologic Experiments with Denatured and Insoluble Proteins. C. L. A. Schmidt, Berkeley.—p. 281.

Journal of Parasitology, Urbana

September, 1921, **8**, No. 1

Cytology and Life History of the Amebae: Descriptions of two New Species. R. W. Glaser, Princeton, N. J.—p. 1.
South African Larval Trematodes. E. C. Faust, Peking, China.—p. 11.
Rhynchobothrium Ingens Spec. Nov. A Parasite of Dusky Shark (Carcharhinus Obscurus). E. Linton, Columbia, Mo.—p. 22.
Two Genera of Ectoparasitic Trematodes from Fresh-Water Fishes. H. J. Van Cleave, Urbana, Ill.—p. 33.
Experimental Ingestion of Ova of Fasciolopsis Buski; Also Ingestion of Adult Fasciolopsis Buski for Purpose of Artificial Infestation. C. H. Barlow, Shoahsing, China.—p. 40.
Case of Human Infection with Isospora Hominis Probably Originating in United States. F. G. Haughwout, Manila, P. I.—p. 45.

Journal of Urology, Baltimore

June, 1921, **5**, No. 6

*Clinical and Pathologic Study of Contracted Bladder. W. A. Frontz, Baltimore.—p. 491.
*Combined Tumors of Kidney. R. C. Graves and E. R. Templeton, Boston.—p. 517.
*Tropical Inguinal Granuloma in Eastern United States. A. Randall, J. C. Small and W. P. Belk, Philadelphia.—p. 539.

Contracted Bladder.—The essential lesion in the condition variously described as "elusive ulcer," "localized cystitis," "interstitial cystitis," "panmural cystitis," etc., Frontz says is a submucous fibrosis. In most cases other evidences of inflammatory change are noted in the different layers of the bladder wall, but these differ in no respect from in the average case of chronic diffuse cystitis. The cardinal symptoms of the condition are urinary frequency and pain, referred chiefly to the suprapubic region and resulting from overdistension of the bladder. The diagnosis is based on the history, the finding of a diminished bladder capacity, with urine not infrequently sterile, the production of intense suprapubic pain when an attempt is made to introduce fluid beyond its capacity and cystoscopic findings often comparatively slight and out of all proportion to the clinical picture presented. Hydraulic distension of the bladder, local application of various drugs, high frequency, etc., have been unproductive of permanent results. When the lesion occupies a portion of the bladder permitting resection, this procedure should be employed. In those cases in which resection is not feasible, deep cauterization should be practiced.

Combined Tumors of Kidney.—Two cases of true combined renal tumors are reported by Graves and Templeton. In one case there existed a papillary carcinoma of the upper portion

of the pelvis with extension into the kidney and a hypernephroma in the lower pole of the kidney. In the second case a papilloma of the renal pelvis and a papillary cystadenoma of the kidney were the two tumors present. In each of these cases the presence of combined tumors was evident on examination of the gross specimen. In neither case could there be any question of developmental relationship between the combined growths.

Tropical Inguinal Granuloma.—Randall and his associates assert that this disease has been present, practically constantly, in the Philadelphia General Hospital as long as any of the attending physicians and nurses can remember. It has masqueraded under various other diagnoses. Direct smears from the lesions, properly prepared and stained, constitute a very reliable method of diagnosis. The granuloma organisms have been grown in cultures in four instances. All the cases, with one exception, occurred in the negro. The only treatment of avail has been the intravenous injection of antimony tartrate in doses of from 0.4 to 0.1 gm.

Kansas Medical Society Journal, Topeka

September, 1921, **21,** No. 9

Gonorrhea of Lower Genito-Urinary Tract in Women, with Special Reference to Its Treatment. M. O. Nyberg, Wichita.—p. 281.
Carcinoma of Uterus. R. C. Lowman, Kansas City.—p. 286.
Very Early Case of Gonorrheal Arthritis. F. A. Trump, Ottawa.—p. 288.
Doctor and So-Called Cults. C. C. Goddard, Leavenworth.—p. 289.
Law for Doctor. Right of Physician Selling Location and Practice to Resume Practice in Immediate Vicinity. L. Childs.—p. 292.

Medical Record, New York

Oct. 8, 1921, **100,** No. 15

Management of Bone and Joint Injuries. A. P. Stoner, Des Moines, Ia.—p. 617.
Use of Round Ligaments in Retrodisplacement of Uterus. A. W. Collins, San Francisco.—p. 621.
Unusual Pituitary Case: Hypopituitarism. W. N. Berkeley, New York.—p. 624.
*Two Instances of Inveterate Epithelioma Formation. D. W. Montgomery and G. D. Culver, San Francisco.—p. 625.
Immunity in Tuberculosis. O. Paget, Perth, West Australia.—p. 627.
Heart Murmurs and Heart Disease in Children. G. Werley, El Paso, Texas.—p. 629.
Frigidity and Sterility in Female. B. S. Talmey, New York.—p. 631.
Review of Blood and Urine Examinations in 200 Cases of Chronic Focal Infection of Oral Origin. A. M. Crance, Geneva, N. Y.—p. 633.
Dietetic Treatment of Cancer. T. J. Allen, Eureka Springs, Ark.—p. 633.

Multiple Epitheliomas.—Montgomery and Culver report the case of a man, who at 35 had a fingernailed-sized epithelioma in the hollow of the shell of the left ear. Under curettage and roentgen-ray irradiation healing was perfect, and there has been no return in this particular locality. Since then, however (eleven years ago), he repeatedly has had epitheliomas in different situations on the face, the left cheek, the forehead, the left zygoma, the left tragus, the nose, corner of the mouth, over the right cheek bone, etc., eleven tumors all told. All the later epitheliomas have been treated with radium. As the patient had a fatty skin, it was only natural to inquire into his fat intake. At one time he was taking more than sufficient butter and cream, but a diminution of this together with a lessening of his carbohydrates brought no noticeable amelioration. As the actinic rays of sunlight are known to be among the chief exciting causes of epithelioma of the exposed surfaces, and as the patient leads an outdoor life in San Joaquin Valley where the sunlight in summer is intense, and the bright days are continuous, he was advised to wear a broad brimmed hat, lined with yellow or red, to absorb the noxious rays. These precautions, however, brought no noticeable relief. The greatest advance made in the cure of this patient lay in the substitution of radium for the curet, cautery, and roentgenrays. Another similar case is reported.

Military Surgeon, Washington, D. C.

October, 1921, **49,** No. 4

Some Lessons of World War in Medicine and Surgery from German Viewpoint. W. S. Bainbridge, Boston.—p. 361.
General Survey of Communicable Diseases in A. E. F. H. Emerson, New York City.—p. 389.
Hay-Fever and Its Treatment with Pollen Extracts. W. C. Williams.—p. 421.
Thrombosis of Cavernous Sinus of Otitic Origin. R. H. Goldthwait.—p. 430.
Epididymotomy in Thirty-Two Cases of Gonorrheal Epididymitis. C. D. Allen.—p. 439.
Injuries of Head and Eyes in Warfare. H. V. Wurdemann, Seattle.—p. 443.
Two Cases of Intestinal Obstruction by Meckel's Diverticulum Occurring in Same Individual and Complicated by Acute Appendicitis. D. F. Winn.—p. 464.
Higher Education in Army. E. Colby.—p. 467.

Northwest Medicine, Seattle

September, 1921, **20,** No. 9

*Blood Transfusion in Children. Analysis of 600 Cases. B. Robertson, A. Brown and R. Simpson, Toronto, Ont.—p. 233.
Clinical Study of Thirty Cases of Cervical Adenitis. J. B. Manning, Seattle, Wash.—p. 244.
Ten Years Progress in Children's Diets: Vitamins. C. U. Moore, Portland, Ore.—p. 247.
Congenital Syphilis. J. J. Tilton, Spokane, Wash.—p. 251.
Clinical Records, Laboratory and General Practitioner. R. E. Colman, Vancouver, B. C.—p. 254.
Rocky Mountain Spotted Fever in Seattle. K. Winslow, Seattle, Wash.—p. 257.

Blood Transfusion in Children.—From their observations the authors have determined that some but not all of the blood groups are definitely established at birth. The groups as indicated by the reactions of the red cells may be established, although the agglutins in the serum may not be established till later. This means that even in all new-born infants, where transfusion is contemplated, the compatabilities of the blood should be tested. In 56 per cent. of the tests the father and in 57 per cent. the mother were in the same group as the child, while 25 per cent. of the tests both father and mother were in the same group as the child. The syringe cannula method, taking everything into consideration, is the method of choice for transfusion in infants and children, the citrate method being reserved for selected cases. The internal saphenous vein at the ankle is the site of election. The maximum amount to be transfused in children up to 18 months should not exceed 15 c.c. per pound of body weight and in older children the proportion decreases according to the age. The only benefit derived from transfusion in nutritional disturbances is in cases of severe decomposition with an associated secondary anemia and in acute intestinal intoxications. In the former group the mortality was reduced from 82 per cent. to 59 per cent. In the group of blood diseases the most striking results occurred in hemorrhagic diseases, with a mortality of 2.3 per cent. The next most striking results were obtained in uncomplicated secondary anemia. It is of no benefit in leukemia. In children suffering from a bacteremia the withdrawal of a certain amount of blood and the introduction of fresh adult blood was of benefit. In erysipelas, exsanguination transfusion is without doubt an improved therapeutic measure for this type of infection. In the toxic shock of superficial burns, where convulsions have occurred as a result of the toxemia, the mortality rate with any other form of treatment has been 100 per cent. The authors had eight cases with five recoveries (mortality, 38 per cent.).

Oklahoma State Medical Association, Muskogee

July, 1921, **14,** No. 7

Radium and Roentgen-Ray Treatment of Cancer. E. S. Lain, Oklahoma City.—p. 169.
Early Diagnosis First Step in Curability of Cancer. A. S. Risser, Blackwell.—p. 172.
Cancer Deaths: Why So Many? G. A. Wall, Tulsa.—p. 175.
Surgical Treatment of Cancer. J. H. White, Muskogee.—p. 179.
Pathogenesis of Malignancy. H. A. Lile, Cherokee.—p. 180.

Porto Rico Medical Association Bulletin, San Juan

Aug. 31, 1921, **15,** No. 132

*Differential Diagnosis of More Common Pyrexias in Porto Rico. A. Torregrosa.—p. 145. Cont'n.
*Calymmatobacterium Granulomatis. S. Giuliani.—p. 170.
*Roentgen-Ray Study of Pulmonary Disease. M. Guzman, Jr.—p. 172.
*Premature Separation of Placenta. J. S. Belaval.—p. 176.

Common Pyrexias in Porto Rico.—Previous instalments of Torregrosa's monograph have been reviewed in these columns, Nov. 6, 1920, p. 1293, and April 16, 1921, and June 25, 1921, p. 1132 and p. 1859. He here continues his analysis of pernicious malarial fever, describing the hemorrhagic, the comatous, the paralytic and the meningitic forms, the forms with delirium as the most prominent symptom, form simulat-

ing peritonitis or dysentery, the form with suprarenal insufficiency and the form mainly involving the kidneys. Examples are cited, and he warns that typhoid, measles, various septicemias and influenza may assume a pernicious form in hot climates. The exclusively malarial nature of many cases with a pernicious clinical picture is demonstrated by the improvement under quinin, and exclusively under this. He adds that malaria must not be regarded as a museum where the entire pathology of the tropics can be catalogued. He mentions an instance of a cerebral hemorrhage with unilateral paralysis, deviation of head and eyes and stertorous breathing which was diagnosed the next day as malignant typhoid. This diagnosis was then "corrected" to pernicious malaria, notwithstanding that it was pointed out that the fever had followed not preceded the sudden onset of symptoms.

Calymmatobacterium Granulomatis.—Giuliani reports finding this micro-organism in Porto Rico, and the favorable action of tartar emetic in treatment of ulcerating granulomas.

Roentgenoscopy in Lung Disease.—Guzman expatiates on the instructive roentgen-ray findings in both incipient and advanced pulmonary disease, saying that the shadow cast by a half filled bottle is better evidence of its exact contents than the sounds made by shaking the bottle.

Premature Separation of Placenta.—Belaval has had four cases of this kind. Three of the patients were primiparas, and two of the four succumbed to internal hemorrhage. The patients are usually too weak to stand cesarean section when the true condition is recognized.

South Carolina Medical Association Journal, Greenville

September, 1921, **17**, No. 9

Unintentional Neglect of Children's Eyes and Throats in Schools of Rural Districts. C. E. Crosby, Greenwood.—p. 210.
Some Indications for Cesarean Section with Report of Section Under Local Anesthesia. R. E. Seibels, Columbia.—p. 211.
Importance of Early Diagnosis of Gastric Cancer. R. Wilson, Jr., Charleston.—p. 216.
Surgical Renal Diseases. M. Weinburg, Sumter.—p. 220.
Wassermann Test, Its Reliability, Significance and Limitations. H. M. Smith.—p. 225.

Texas State Journal of Medicine, Fort Worth

September, 1921, **17**, No. 5

Deficiencies in Surgical Training. J. E. Thompson, Galveston.—p. 239.
Surgical Odds and Ends. J. F. Binnie, Kansas City, Mo.—p. 244.
Flexing Power as an Index to Functional Efficiency in Appraisement of Disability in Upper Extremity, Resulting from Industrial Injuries. F. L. Barnes, Houston.—p. 247.
Plea for Closer Cooperation of Internist and Surgeon or Specialist, in Diagnosis and Treatment. J. W. Torbett, Marlin.—p. 249.
Bromoderma. J. B. Shelmire, Dallas.—p. 251.
*Onychogryposis, Ichthyosis Hysterix and Keratosis Follicularis, Occurring in Two Children in Same Family. I. L. McGlasson, San Antonio.—p. 255.
Roentgen-Ray Treatment of Commoner Dermatoses. J. C. Michael, Houston.—p. 256.
Case of Actinomycosis of Jaw. J. M. Cadwallader, San Antonio.—p. 260.
*Bacillary Dysentery in Texas. M. F. Boyd, Galveston.—p. 261.

Familial Onychogryposis.—McGlasson claims that his cases of onychogryposis occurring in two brothers are unique because no similar instance is on record so far as he has been able to learn. One boy was aged 17, the other 11. The deformity, clawlike nails, was very marked. The nails on the fingers varied from 2 c.m. to 5 c.m. in thickness. The toenails were about the same size and shape as the fingernails. In addition to the objective symptoms as to the toes, they were very painful and interfered with walking and the wearing of shoes. The overgrowth in the nails was in proportion on each finger and toe, to the normal nail. The lesions of ichthyosis were most marked in the flexure surface of the arms, around the neck and over the abdomen. Keratosis follicularis was more evident on the extensor surfaces of the arms and legs and scapular region, a few horny spines projecting from the follicles in other parts of the body. Both boys were otherwise normal. The parent's medical history was negative. The mother's brother was the only relative who had had onychogryposis.

Bacillary Dysentery in Texas.—Boyd reports three cases of acute dysentery caused by *B. dysenteriae* occurring in native Texans.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Sept. 24, 1921, **2**, No. 3169

Sensations as Reflex Manifestations of Disease. P. T. Herring.—p. 469.
*Points in Abdominal Diagnosis. P. Daniel.—p. 470.
Treatment of Syphilis in Male. R. W. MacKenna.—p. 473.
*Syphilis in Women and Children. W. C. Swayne.—p. 476.
Treatment of Gonorrhoea in Men. D. Lees.—p. 480.
Local Use of Oxygen in Empyema. L. Gordon.—p. 488.

Importance of History in Abdominal Diagnosis.—Personal experience has impressed Daniel with the fact that a history of a case may be acquired most laboriously and painstakingly, and yet be of comparatively small value in diagnosis. All the facts of the case may be recorded, but they bear no relation to one another; they have no sequence; they fall over one another and confuse. Yet the taking of a history is the actual unraveling and elucidation of those warnings which, nearly always precede the crisis or climax, and is the key to its logical diagnosis. It is in the taking of a history that one person may ascertain new facts or correlate and elucidate already acquired facts in their true bearings, and so be enabled to stick to the real course of events and avoid the many by-paths among which a mere jumble of events is so apt to lead the unwary. The taking of a history does not mean asking questions merely; it entails the guiding of the answers, since in all cases there are salient facts and others which are immaterial, and one salient fact leads up to the succeeding ones. The taking of a good history—one, that is, which will inevitably lead to a logical deduction, in other words a diagnosis—necessitates a good working knowledge of all the abdominal viscera in health and disease.

Management of Syphilis.—Swayne maintains that the venereal diseases clinic should not be the only avenue of attack on the disease. Early diagnosis and continuous treatment are most important, and the cooperation of the family doctor is necessary for any real advance. Diagnostic difficulties are not greater than they were in years gone by, but diagnostic facilities are now much increased. The technic of modern methods of treatment is not difficult, and can quite easily be learnt if time is available. The family doctor can, with great advantage, treat a large number of the patients now attending clinics. Clinics should be much more largely consultative for diagnostic purposes, and should be used for such treatment as the family doctor feels he is not able to undertake, either on account of lack of time, or any other reason which may seem good to him.

Oct. 1, 1921, **2**, No. 3170

*Restoration of Normal Cardiac Mechanism in Cases of Auricular Fibrillation by Means of Quinidin Sulphate. A. N. Drury and C. C. Iliescu.—p. 511.
*Manner in Which Quinidin Sulphate Acts in Auricular Fibrillation. T. Lewis, A. N. Drury, C. C. Iliescu and A. M. Wedd.—p. 514.
*Enlargement of Splenculus to Size of Normal Spleen. W. McA. Eccles and G. D. Freer.—p. 515.
Cesarean Section. J. M. M. Kerr.—p. 516.
Methods of Performing Cesarean Section. E. Holland.—p. 519.
Treatment of Advanced Carcinoma of Cervix of Uterus by Radium. A. Burrows.—p. 524.
Bronchopneumonia with Pyemic Skin Manifestations Resembling Smallpox. J. B. D. Galbraith.—p. 526.
Sodium Biborate in Epilepsy: Results of Twelve Months' Treatment. J. McCartney.—p. 527.
Cholecystostomy and Choledochotomy Followed by Cholecystectomy Ten Years Later. J. A. Reed.—p. 527.

Quinidin Sulphate in Auricular Fibrillation.—The thirteen cases reported by Drury and Iliescu were under continuous observation for varying periods of time. The method of treatment adopted has been, in the main, that used by previous workers. The patients after being cleared of digitalis or strophanthus, all received one or two preliminary doses of 0.2 gm. quinidin sulphate by mouth for the purpose of excluding the presence of quinidin intolerance; after which the quinidin sulphate treatment given in gelatine capsules by mouth, was commenced. In six cases the normal rhythm was reestablished, while in the remaining seven cases, although similar changes were produced in the retardation of the auricular rate the movement persisted without break, and the rate returned, on withdrawal of the drug, to its original level.

The authors state that quinidin sulphate has a very remarkable action on the auricle, and this action is of a potent nature. For this reason alone the method of direct leads from the chest is of importance, for it gives a record of the effect of the drug on the auricle itself; the effect on the auricle will vary considerably owing to the factors of absorption, individual tolerance, etc., and the direct leads enable the drug to be controlled.

Action of Quinidin Sulphate in Auricular Fibrillation.—The essential feature of the action of quinidin sulphate on the fibrillating auricle is an invariable and conspicuous reduction of the rate at which the auricle beats; in patients in whom treatment is successful this progressive slowing of the auricular action is abruptly disturbed, the disordered action ceases, and the normal action is at once resumed. Quinidin has a paralyzing action on the vagi, an action not altogether unlike, though less powerful than that of atropin; by reducing vagal tone the drug will increase the power of the junctional tissues to conduct, and lift the ventricular rate, as does atropin. Opposed to these actions is a direct action of the drug on the junctional tissues. This opposed action probably moderates in some measure the rise of ventricular rate which occurs during the clinical use of quinidin in cases of auricular fibrillation.

Enlargement of Splenculus Following Splenectomy.—Eccles and Freer cite the case of a man, a football player, who sustained a rupture of his spleen necessitating its removal. The patient had contracted malaria previous to the accident, and the enlargement of his spleen may have contributed to the ease with which it was ruptured. He made a somewhat complicated recovery, having what was thought to be mild malaria, and some trouble at the base of the left lung. On full recovery he was able to carry out his duties without any untoward symptoms, and states that he was assured that he would not suffer again from malaria as he was minus his spleen! He continued in good health for eight years, after which he began to have some attacks of weariness, and was found to have an evening temperature. It was considered by his medical advisers that this might be due to some obscure form of tubercle. His blood count was virtually normal. In general health he appeared well, was not anemic, and had no temperature elevation. There was a wide gap in the upper third of the left rectus, and on coughing a marked protuberance of abdominal contents took place. On opening the abdomen some adhesions of the omentum were found and separated. Then, to the astonishment of all present a well-formed, normal-looking spleen was seen in the usual position. The shape, size, notch, color, and consistency all appeared to be that of a normal spleen. That a splenculus may enlarge, after the removal of an ordinary spleen, is well known, but the rarity with which such an enlarged organ is actually seen, leads the authors to place this case on record.

Dublin Journal of Medical Science

September, 1921, **4**, No. 19

*Rifle Bullet in Heart. M. R. J. Hayes.—p. 385.
Mobile Ascending Colon and Duodenal Obstruction as Common Causes of Equivocal Symptoms in Abdomen. A. A. McConnell.—p. 389.
Case of Acute Meningitis. W. A. Winter and W. M. Crofton.—p. 404.
Automatic Fluid Distributor. J. W. Bigger.—p. 407.

Rifle Bullet in Heart.—In Hayes' case the bullet was situated midway between the heart apex and the base of the ventricle (the auriculoventricular groove).

Edinburgh Medical Journal

October, 1921, **27**, No. 4

Epidemiology of Measles and Influenza. J. W. Crerar.—p. 185.
Still-Birth: Its Causes, Pathology and Prevention. F. J. Brown.—p. 199.
*Organism Obtained from Carcinomatous Growths. J. Young.—p. 212.

Micro-Organism Discovered in Cancer.—The organism described by Young was isolated from about forty cases of human carcinoma and two cases of breast carcinoma in the mouse. The youngest stage is minute, being just recognizable under the highest power of the microscope. This phase is derived from a germination of "spore" forms and it grows best in a highly acid fluid medium. It would represent the stage during which the original infection occurs. This stage has not been cultivated separately, because it quickly passes into a somewhat larger phase (coccoid or bacillary), which grows well at ordinary temperatures when transferred to a plate medium. This phase passes into a comparatively large sporing phase, in which it may remain dormant for long periods. The investigations open up the possibility that the smaller phases may ordinarily be passed in the nucleus of the cancer cell. If this is so it becomes likely that the proliferation of the cells is due to the stimulus of the intranuclear parasite, and the continued and uncontrolled proliferation that characterizes a malignant growth would thus be explained by the fact that the daughter nuclei carry with them one or more germs in the dividing or vegetative phase. Finally, a record of three malignant growths apparently produced in healthy mice by the injection of the cultures tends to support the belief that the organism may possess some etiologic relation to tumor growth. Details as to growth and staining reactions are given.

Glasgow Medical Journal

September, 1921, **14**, No. 3

Modern School of Medicine in China. H. Balme.—p. 129.
Surgical Treatment of Uterine Prolapse. S. J. Cameron.—p. 138.
*Case of Fröhlich's Syndrome Following Injury to Sella Turcica. J. Hendry.—p. 147.

Fröhlich's Syndrome Caused by Injury to Sella Turcica.—Following on a fall when she struck the back of her head, Hendry's patient had almost complete loss of vision. Vision gradually returned and is now fairly satisfactory, though still impaired. Amenorrhea developed, the patient became quite stout and presented signs of thyroid insufficiency. Finally, she manifested a fairly well developed Fröhlich's syndrome—the dystrophia adiposogenitalis, with lethargy and somnolence; but by this time the menstrual periods had returned in a very scanty form. The roentgen ray showed a fracture of the base of the skull involving the sella turcica. The patient could ingest 300 gm. glucose without showing any glycosuria. Her temperature was steadily subnormal and her blood pressure low (105 mm. Hg). The patient improved under treatment with extract of the anterior lobe of the pituitary.

Indian Journal of Medicine, Calcutta

September, 1921, **2**, No. 3

Intracapsular Extraction of Lens in Cataract. G. Das Kapur.—p. 429.
Algid Form of Malarial Fever. B. H. S. Bhatia.—p. 436.
Treatment of Typhoid Fever. S. C. Sen Gupta.—p. 442.
Hookworm. V. R. Baxy.—p. 453.
Lamellibranchiate Molluska. I. On Animal of Acar, Gray. E. N. Ghosh.—p. 457.

Indian Medical Gazette, Calcutta

September, 1921, **56**, No. 9

Chronic Dysenteric Peritonitis. J. W. D. Megaw.—p. 321.
Results of Influenza Vaccine Inoculation. H. R. Dutton.—p. 323.
Present Position with Regard to Treatment of Ankylostomiasis. J. B. McVail.—p. 324.
*Bacilluria: Another Unnamed Organism. J. W. Cornwall and H. M. Lafrenais.—p. 325.
Addendum to Autohemic or Autoserum Therapy. D. N. Sen.—p. 326.
Osmosis Through Skin. D. P. Bhargava.—p. 328.
Prevention of Deformities in Joints. R. R. M. Porter.—p. 331.
Roentgen-Ray and Radium Protection Committee.—p. 333.
Direct Record Scotometer, for Investigating Central Field of Vision. N. B. Harman.—p. 335.
Case of Complete Unilateral Infantile Paralysis. A. R. Mazumdar.—p. 336.
Successful Treatment of Case of Scalding. P. K. Dey.—p. 338.
Case of Filarial Cyst on Eye. H. D. Gupta.—p. 338.

Unnamed Organism in Urine.—A man presented himself to Cornwall and Lafrenais for treatment on account of urinary symptoms. The urine was slightly turbid, showed the bacillary sheen and held a little suspended mucus. It was faintly acid and contained no albumin or sugar. In the deposit after centrifuging were small clumps of leukocytes which still retained ameboid movement, some epithelial cells, a few calcium oxalate crystals and numerous short, fat, sluggishly motile bacteria, single and in short filaments. On staining, only those leukocytes at the exterior of a clump showed phagocytosis. A pure culture of the bacilli was readily obtained. The authors compare this organism with other bacteria found in the urine and show wherein it differs.

International Journal of Psycho-Analysis, London

March, 1921, **2**, No. 1

Psycho-Analytical Observations on Tic. S. Ferenczi.—p. 1.
Short Study of Life and Character of Mohammed. O. Berkeley-Hill. —p. 31.
Psycho-Analytic Study of Christian Creed. C. Moxon, Los Altos, Calif. —p. 54.
Communications: Womb and Birth Saving Phantasies in Dreams. M. J. Eisler.—p. 65.
Numbers in Dreams. C. D. Daly.—p. 68.

International Journal of Public Health, Geneva, Switzerland

September-October, 1921, **2**, No. 5

Epidemic Encephalitis (Encephalitis Lethargica). I. Strauss and I. S. Wechsler, New York.—p. 449.
Rôle of Medical Profession in Prevention of Tuberculosis. H. Rolleston.—p. 465.
Garden City. G. Benoit-Levy.—p. 473.
Proposals for Antimalaria Work in Palestine. H. Yofe.—p. 478.
Suggestions for a Red Cross Health Program. C. E. A. Winslow.—p. 488.

Lancet, London

Oct. 1, 1921, **2**, No. 5118

Value of Pathologic and Roentgen-Ray Examinations in Abdominal Surgery. J. Sherren.—p. 689.
Respiratory Efficiency in Relation to Health and Disease. M. Flack. —p. 693.
*Disastrous Results of Certain Abduction Fractures of Ankle-Joint. W. A. Lane.—p. 697.
*Nutrition and Growth on Diets Devoid of True Fats. J. C. Drummond and K. H. Coward.—p. 698.
Use of Sulfarsenol in Treatment of Congenital Syphilis. E. Crawford and G. B. Fleming.—p. 700.
*Copper in Tumors and in Normal Tissues. C. P. White.—p. 701.
Case of Lupus-Epithelioma Treated with Radium. F. J. Jauch.—p. 704.
Case of Labioglossolaryngeal Paralysis. J. C. Voigt.—p. 704.
*Gaertner Meningitis Complicating Gaertner Enteritis. J. Smith.—p. 705.

Results of Ankle Fractures.—Much of the difficulty and failure which the surgeon experiences in the treatment of fractures Lane says is due to the fact that while in his preliminary studies he is called upon to acquire a transitory knowledge of much that is relatively useless to him in the efficient performance of his profession, the fundamental principles of mechanics upon which a knowledge of the function of the skeleton and soft parts and of the treatment of the variations they undergo from injury or disease is absolutely essential, are excluded from his education. The fault lies not with the surgeon but with the teacher.

Nutrition and Growth on Fat Free Diets.—Young rats were grown by Drummond and Coward from weaning to maturity on diets, deprived as far as possible of neutral fats, and have shown normal development and behavior. It is intended to ascertain whether the capacity for breeding and rearing the young is in any way inhibited by such diets. More deaths were encountered among the animals on the fat free diets than among those receiving fats. It would appear that neutral fats are, from a purely physiologic standpoint, dispensable constituents of a diet, provided the other foodstuffs supply a sufficiency of the vitamin frequently found in association with natural fats. The real value of fats as convenient sources of energy is obvious.

Significance of Copper in Tissues.—Copper appears to be universally present in the tissues of animals and plants so far as it has been looked for. The known catalytic action of copper and the presence of copper in seeds, eggs, and in fetal as well as in adult tissues, suggest to White that it has a physiologic significance. Copper is present to a greater extent in degenerating tumors than in those which are not degenerated.

Gaertner Bacillus Meningitis Complicating Enteritis.—Smith claims to have found only one case similar to his recorded in the literature. The clinical and bacteriologic findings showed that this was a case primarily of Gaertner enteritis. Two weeks after the onset of the disease the infection extended to the meninges.

Medical Journal of Australia, Sydney

Sept. 3, 1921, **2**, No. 10

Comparative Statistical Inquiry Into Prevalence of Diseases, Death Rates, Infantile Mortality and Birth Rates in Queensland. A. Breinl. —p. 173.

South African Medical Record, Cape Town

Aug. 13, 1921, **19**, No. 15

Some Problems in Medical Science Awaiting Solution in South Africa. M. R. Drennan.—p. 283.
Schistosomiasis in Natal. F. G. Cawston.—p. 287.

Aug. 27, 1921, **19**, No. 16

Syphilis Among Colored Population of Pretoria: Record of Five Hundred Wassermann Reactions. A. Pijper.—p. 302.
Bruschettini Treatment in Pulmonary Tuberculosis. F. Veglia.—p. 305.
Case of Bilateral Renal Calculi. A. Radford.—p. 307.

Sept. 10, 1921, **19**, No. 17

Chronic Gastric Ulcers; Treatment. C. F. M. Saint.—p. 323.
Laboratory Jottings. J. Pratt-Johnson.—p. 328.

Nourrisson, Paris

September, 1921, **9**, No. 5

*Pyloric Disease in Infants. M. Péhu and X. Pinel.—p. 257.
*Denutrition in Infants. A. B. Marfan.—p. 291.
*The Blood Pressure in the New-Born. P. Balard.—p. 304.
*Desquamating Erythrodermia. G. Blechmann and G. L. Hallez.—p. 320.
Classification of Digestive Disturbances in Infants. O. Cozzolino. Reply. A. B. Marfan.—p. 324.

Stenosis of the Pylorus in Infants.—Péhu and Pinel have been able to compile only 38 cases of this affection in France, including 7 personally observed, and only 17 cases in Italy. These small figures from the Latin countries are in marked contrast to the hundreds of cases reported from Anglo-Saxon and German countries. They compare the records, and say that to date nothing has been discovered that will tell positively whether the *maladie pylorique* is of an organic or functional nature, and hence whether medical or surgical measures should be applied. Even the evolution and the results of treatment do not allow a retrospective diagnosis of the variety of stenosis, whether it was from a malformation or spasm. Their views as to the nature and treatment differ from those currently prevailing, they say, as they will describe in a following article.

Diagnosis of Treatment of Hypothrepsia and Athrepsia.—Marfan remarks that the diagnosis of these conditions is mostly by exclusion of other causes for the denutrition. If the cause can be discovered and corrected and breast milk supplied, the infant may be saved. But it must have individual and not institutional care, and even these cannot arrest actual athrepsia once installed. If breast milk is not available, asses' milk may be given or buttermilk or desiccated milk or condensed skimmed milk is preferable to ordinary cow's milk. Caffein and camphor may prove useful stimulants. He gives them as for choleriform diarrhea, 1 c.c. of a 1:200 solution of caffein by subcutaneous injection in the morning for three or four days, changing then to camphorated oil (1:20) and then suspending for a week. The previous instalments of Marfan's study of denutrition were summarized in THE JOURNAL, Aug. 6, 1921, p. 495, and in the preceding volume.

He maintains that the cause is the lack of certain ferments found only in human milk. He has sought to supply them parenterally by injecting 2 c.c. of tyndallized human milk, and the results were encouraging. But the difficulties of the technic and the fear that the tyndallization may destroy the needed ferments have made him hesitate. Rocaz of Bordeaux has reported excellent results from subcutaneous injection of 4 c.c. of raw breast milk three times a week. The injections are made in the abdomen. There is scarcely ever any general reaction, and he says that improvement has followed in infants that have not been getting breast milk. It seems also to protect them against infections. Some pediatricians have given brandy or have used oxygen and organotherapy, but Marfan states that these have shown no proof of efficacy. He gave an extract of human placenta in some cases but without results, although Hammel has reported that pulverized placenta tissue seems to stimulate the growth of young infants. The old experiences of Combe and Narbel with subcutaneous injection of oil containing 5 cg. of lecithin might be tried again, as we have learned since that lecithin is rich in fat soluble vitamin. Marfan has had no experience with the sugar solution which Dell'Orso has been using with good effect according to his recent report. He injected 2 or 3 gm. of a 100 per cent. solution of glucose, saccharose and levulose.

The Arterial Pressure in the New-Born.—Balard expatiates on the advantages of Pachon's oscillometer for studying the

blood pressure in young infants, and reproduces some typical curves. They are instructive in regard to the vitality, and the effect of various measures.

Desquamating Erythrodermia.—The infant of 3 months had first seborrheic eczema; this was followed by the desquamating erythrodermia. The child was getting only part breast milk, and five subcutaneous injections of 1 c.c. of breast milk were given, with epinephrin internally. The skin cleared up and the child increased in weight. No preceding treatment had displayed any efficacy.

Paris Médical

Sept. 10, 1921, **11**, No. **37**

*School Lunches. R. Gaultier.—p. 209.
Cause of Fever in the Tuberculous. E. Bossan.—p. 214.
Chronic Urethritis Without Acute Phase. S. Ockonomos.—p. 217.

School Lunches.—Gaultier gives tables of model school lunches compiled from the standpoint of nourishment, digestibility and expense. His menus vary for each day in the week, but beef, boiled or braised, forms part of each lunch after the age of 4. Vegetable soup and soft mashed potatoes or purée of beans, rice or spaghetti, and bread complete the lunch. The children should be trained to eat it slowly, and he urges that the medical inspector of the school should be on the school canteen committee.

Presse Médicale, Paris

Sept. 24, 1921, **29**, No. 77

*Idiosyncrasy to Acetylsalicylic Acid. M. Labbé and J. Haguenau.—p. 761.
*Strophanthin in Fractioned Doses. D. Daniélopolu.—p. 762.
*Anaphylactic Origin of Nasal Hydrorrhea. Pasteur Vallery-Radot, J. Haguenau and A. Watelet.—p. 764.
Bradycardia in Typhoid Fever. R. Lutembacher.—p. 766.
*Herz' Phrenocardia. M. Nathan.—p. 767.

Desensitization to Acetylsalicylic Acid.—Labbé and Haguenau here report another case of idiosyncrasy to acetylsalicylic acid which they conquered by desensitization methods. Widal and Vallery-Radot's report of their first case of the kind was summarized in these columns, April 10, 1920, p. 1055. The anaphylaxis to this drug had been noted for nine years in their case. In the case here reported by Labbé and Haguenau the drug had been taken only two or three times, and the anaphylaxis seems to be a kind of crossed sensitization, possibly from articles of food. They have encountered a case of this latter kind, anaphylaxis to strawberries having developed in consequence, apparently, of an injection of diphtheria antitoxin. Severe anaphylaxis phenomena followed the eating of strawberries afterward. The young woman was desensitized to acetylsalicylic acid by the usual method of repeated small doses, but this desensitization did not last very long, the anaphylaxis developing anew although she had not taken any of the drug in the interim. The antianaphylaxis method, on the other hand, proved invariably successful, that is, giving a small dose of the drug one hour before the full dose. The colloidoclasic nature of the phenomena observed was confirmed by the leukocyte count at intervals. One remarkable fact brought out by their research is that the most intense upset in the leukocytes occurs almost instantaneously, and hence it escapes detection unless the blood count is made at once and repeatedly. This instantaneous reaction seems to be peculiar to this drug, probably on account of its rapid diffusion; it is sometimes refound in the urine in two minutes.

Strophanthin in Fractioned Doses.—Daniélopolu argues that as strophanthin has a cumulative action, the desired effect can be realized safely only by giving the drug in minute doses. For over ten years he has been giving it in two or three intravenous injections during the day instead of a single injection, thus fractioning the total dose which never surpasses 0.25 mg. Its action is similar to that of digitalis but it acts more rapidly although the effect does not last so long as with digitalis. By fractioning the doses in this way, it can be given even with extreme insufficiency of the myocardium, with kidney disease independent of the state of the heart, or after the recent use of digitalis.

Therapeutic Antianaphylaxis.—Vallery-Radot and his co-workers here describe the application of digestive antianaphylaxis to the treatment of nasal hydrorrhea. The woman of 32 had periods of sneezing in the morning, followed by a copious discharge of a clear fluid from the nose. This hydrorrhea kept up for about three hours, with frequent sneezing and lacrimation, and these attacks had returned every day for ten years. Of late they had been recurring three times a day, first the hydrorrhea coming on between half an hour and an hour and a half after the midday meal and again after supper, with an attack of asthma at 2 a. m. terminating with hydrorrhea, and in the morning there were red patches on the skin. This sequence suggested digestive anaphylaxis, especially as it was learned that with an attack of influenza, during which she had been unable to eat anything for three days, these days had been free from the hydrorrhea. A test meal of albumins without meat was followed by a typical hemoclasic crisis, and this crisis just preceded the nasal hydrorrhea attack. Treatment with peptone was begun, the patient taking a capsule of 0.35 gm. of peptone one hour before meals. This warded off the hemoclasic crisis and also the hydrorrhea, asthma and eruption. For the first time in years she was free from asthma at night and from hydrorrhea during the day. The peptone was kept up for ten days, and during the following days without peptone a few slight attacks of hydrorrhea were observed, but in a few days they subsided and did not return after a few single doses of the peptone. Since May 19, when all peptone was discontinued, she has been entirely free from all tendency to the previous symptoms. The peptone used was 0.2 gm. of meat peptone and 0.15 gm. of fish peptone, but as a rule they use ordinary peptone of a good make, in a capsule containing 0.5 gm. They add that probably if the ordinary peptone had been used here the results would have been the same.

Psychosexual Cardioneurosis.—Nathan discusses whether the set of symptoms, described by M. Herz as phrenocardia, is an autonomous affection, and decides in the negative.

Revue Franç. de Gynécologie et d'Obstét., Paris

July, 1921, **16**, No. 7

*Hysterectomy in Puerperal Fever. J. Péry and P. Balard.—p. 369.
*Sacral Anterior Meningocele. E. Weber.—p. 377.
Inaugural Lecture in Gynecologic Clinic. G. de Rouville.—p. 393.

Hysterectomy in Puerperal Infection.—Péry and Balard quote the conflicting views of various authorities on this question. Some advise hysterectomy if there is adnexitis, and others regard adnexitis as a formal contraindication. In a case described, the general condition was grave and there was tenderness of the uterus in contrast to the soft abdominal wall, the second day after expulsion of two fetuses, two or three weeks after various efforts to induce abortion. Hysterectomy seemed indicated and was planned for the next morning and a turpentine abscess was applied. When morning arrived, the abdominal wall was found rigid and the right adnexa formed a large mass. This was accepted as formally contraindicating vaginal hysterectomy, the only intervention the woman's condition would have permitted. They regarded this adnexitis as a useful localization of the septicemia, a proof that the general infection was arrested and anchored, at least provisionally, in the adnexa. The fixation abscess developed and the temperature dropped, and by the seventh day after the abortion the woman was on the way to health. By the end of the fourth week the adnexa could no longer be palpated, the whole inflammatory process having been resorbed. The question of hysterectomy in puerperal infection was one of the questions on the order of the day at the recent annual meeting of the Association of Gynecologists and Obstetricians of French speaking countries which was held at Paris, October 1.

Sacral Anterior Meningocele.—Weber's patient was a woman of 27 who complained of dysmenorrhea and sterility. A tumor was palpated which proved to be a large meningocele in front of the sacrum. He has found eighteen similar cases on record. In this instance the removal of the large cyst was followed by acceleration of the pulse to 140, and by the twelfth day intense headache developed, with stiff neck and fever to 40 C. (104 F.), pulse 100, and hemolytic streptococci were found in the lumbar puncture fluid. Improvement followed and no streptococci could be found at the fourth lum-

bar puncture, and recovery was soon complete. The woman had a double uterus but has passed through an apparently normal pregnancy since. He drained the cyst bed into the vagina, and is inclined to accept this as the cause for the streptococcus infection; it would have been better to have drained through a pararectal incision, he says.

Schweizerische medizinische Wochenschrift, Basel

Sept. 22, 1921, **51**, No. 38

*Antethoracic Esophagus. A. Fonio.—p. 865.
Bilateral Luxation of Clavicle. J. Dubs.—p. 871.
Bilateral Fracture of Clavicle. J. Dubs.—p. 871.
*Konrich's Stain for Tubercle Bacillus. V. de Mestral.—p. 873.
Kidney Disease in the Pregnant. P. Hüssy.—p. 874. Cont'n.

Plastic Antethoracic Esophagus.—Fonio reports a successful case in a woman of 36, and says that the use of a skin tube made as long as possible, with the shortest possible segment of intestine to bridge the gap, has reduced the danger of esophagoplasty to the minimum while restoring excellent function to the gullet. Swallowing the food proceeds easily and smoothly. When Roux inaugurated the antethoracic method in 1907, he used a very long segment of bowel, and this was almost inevitably doomed to gangrene. Fonio describes the various operations required in his case and the final outcome, and then gives summaries of all other methods and instances of esophagoplasty he has found in the literature. He remarks that scarcely any other surgical intervention has ever had so many modifications and changes as this antethoracic technic. He cites several surgeons who have more than one successful case to their credit, and adds that we are fully justified in proposing the operation after failure of systematic efforts at dilatation in all benign cases of impassable stenosis. With cancer, it is out of the question; the patient with malignant disease is incapable of standing the operation, and could scarcely survive long enough for the final steps of the procedure.

The Konrich Stain for Tubercle Bacilli.—De Mestral endorses highly the ease, simplicity and fine results of the Konrich technic. It shows up the dark red bacilli on a green background: staining with hot carbolfuchsin, for half to two minutes; then rinsing with water; decoloring with a 10 per cent. aqueous solution of sodium sulphite for from half to one minute; rinsing with water; then counterstaining with malachite green (50 c.c. of a saturated aqueous solution of malachite green in 100 c.c. distilled water) for from a quarter to half a minute. The fact that no alcohol is required he regards as an advantage. He found this technic especially fine for paraffin sections. Konrich's original communication appeared in the *Deutsche medizinische Wochenschrift* **46**:741, 1920.

Pediatria, Naples

Sept. 15, 1921, **29**, No. 18

*Rumination in Infants. Romolina Pastore.—p. 825.
*Banti's Disease in Children. A. F. Canelli.—p. 832.
*Etiology of Malignant Lymphogranuloma. G. Jemma.—p. 853.

Rumination in Infants.—Pastore describes three cases of merycism in infants of only 6 days, 2 and 3 months old. She thinks that it is probably more common than generally suspected but escapes detection in very young infants. She was able to cure the tendency in the older children by giving the food a little thicker, but as this was not possible in the youngest child, the rumination has persisted. The regurgitation may be induced by the child's sucking its hand or sucking without anything in its mouth.

Banti's Disease in Children.—Canelli found a subacute and chronic inflammatory process in the liver of a child of 8 months. There was hyperplasia of the connective tissue and atrophy of the parenchyma, and the spleen showed sclerosis and hyperplasia of the connective tissue, with other abnormal findings. It weighed 65 gm. to the total weight of 3,480 gm., that is, 1:212 of the total weight, instead of the normal 1:325. The Wassermann test gave a positive reaction in both the mother and child. He tabulates for comparison with this case 9 other cases in children from 9 weeks to 6 years old, and in 10 between 7 and 14, and in 12 between 15 and 17. Recovery is recorded in 7 of the cases and improvement in 5, all after splenectomy. With one exception with spontaneous recovery at 17, all the others succumbed, including 3 splenectomized children. The duration of the disease was from five months to thirteen years, this oldest case terminating in recovery. Syphilis was suspected in 9 cases and tuberculosis in 2. The anemia was pronounced in some and slight or absent in others. The article is to be continued.

Malignant Lymphogranuloma.—In Jemma's case the 6 months infant with malignant lymphogranuloma had tuberculosis, and the Much granular form of the infection was found in the glands involved. The malignant lymphogranuloma seems to develop in children with a syphilitic or tuberculous or other taint or predisposed by some constitutional anomaly.

Policlinico, Rome

Sept. 19, 1921, **28**, No. 38

*Experimental Research on the Blood Pressure. A. Marrassini.—p. 1259.
*Sequelae of Epidemic Encephalitis. O. Falzi.—p. 1264.
*Idem. A. Guerricchio.—p. 1266.
Chenopodium in Treatment of Ankylostomiasis. A. Filippini.—p. 1268.

Research on the Arterial Pressure.—Marrassini has continued his research on dogs given saline infusion after venesection or given transfusion of defibrinated blood, with or without venesection. All his experiences confirm the greater benefit from transfusion of blood rather than infusion of physiologic saline.

Parkinsonian Symptoms After Epidemic Encephalitis.—Falzi reports ten cases of slow and progressive development of the parkinsonian syndrome after an attack of epidemic encephalitis, emphasizing the total failure of all the measures applied to arrest it, including the arsenicals, sodium cacodylate and organotherapy. The patients were all adults. In Guerricchio's case the lad of 16 sleeps for three or four hours and then is awake for a little longer interval but is apathetic; irritable when disturbed. This sequence of sleeping and wakeful periods during the day is succeeded at night by intense psychomotor agitation, tics, and loud talking and complaining through the night.

Riforma Medica, Naples

Aug. 20, 1921, **37**, No. 34

Bacillus from Case of Pyemia. F. Stinelli.—p. 794.
*Protein Therapy in Venereal Disease. M. Trossarello.—p. 796.
*The Bacillus Colombensis. I. Jacono.—p. 798.
Influence of Proteins on Phagocytosis. A. Dominici.—p. 800.
*Fixation Abscess. W. Janowski.—p. 803.
Epicondylitis from Industrial Accident. E. Aievoli.—p. 805.
Colony for Heliotherapy. G. Mariani.—p. 813.

Protein Therapy in Venereal Disease.—Trossarello reports here on nearly 100 new cases of venereal glandular disease given parenteral injections of milk as a routine procedure, to an average total of four. He begins with 5 c.c. and increases to 10 or 15 c.c., and states that the results observed entitle this protein therapy to be regarded as superior for all venereal adenitis cases, especially the incipient, and in the complications of gonorrhea such as arthritis, adnexitis and epididymitis. The rapid febrile reaction is the healing factor, he says, aside from the increase in the proteolytic ferments, etc., and the enhancing of the vitality of the protoplasm molecule.

Bacillus Colombensis.—Jacono discusses the fevers and tendency to fever which can be traced to *Bacillus colombensis*, and reports experimental research on its biology.

The Fixation Abscess.—Janowski remarks that as turpentine is a poison for the kidneys, this has militated against the wider adoption of Fochier's fixation abscess. But other drugs can be used for the purpose, and he suggests a trial of 1 to 3 c.c. of a 5 to 20 per cent. solution of silver nitrate; 1 or 2 c.c. of petroleum; or 1 to 3 c.c. of creolin. The extent of the fixation abscess is generally proportional to the amount of the chemical injected, and either of these chemicals can be given more freely than turpentine, especially with diseased kidneys.

Aug. 27, 1921, **37**, No. 35

*Kinking of Colon by Membrane. L. de Gaetano.—p. 818.
The Sachs-Georgi Reaction in Syphilis. P. A. Meineri.—p. 824.
Composition and Origin of Melanin. P. Rondoni.—p. 825.
*Special Epileptic Equivalent in Boy. G. Martini.—p. 827.
Surgical Complications of Displaced Kidney. E. Aievoli.—p. 828.
Symptoms and Diagnosis of Diabetic Acidosis. G. Molinari.—p. 829.

Intestinal Disturbance from Jackson's Membrane.—The woman of 44 was cured by operative intervention after eight years of pain and other symptoms in the ileocecal region, finally explained by compression of the ascending colon from Jackson's membrane. There were no signs of inflammatory origin, and de Gaetano is now studying in fetuses the origin of such membranes.

Special Epileptic Equivalent.—The convulsive movements are only in the thighs which are rubbed violently together for three to five minutes. The subject is a boy of 11, and the attack begins with pallor and is followed by a feeling of heaviness in the head for a few hours. The attacks began at the age of 30 months, and returned about every two or three days until the age of 6 when they spontaneously ceased, but returned again at the age of 11, occurring almost every day or even twice a day.

Archivos Españoles de Pediatría, Madrid

July, 1921, **5**, No. 7

*Pernicious Anemia in Girl of Three. E. P. Lasnier.—p. 385.
*Idiopathic Panotitis in Boy of Five. A. Martin Calderin.—p. 395.
Another Madrid Child with Kala Azar. J. Bravo y Frias.—p. 403.

Pernicious Aplastic Anemia in Child.—The child of 3 had been healthy until what seemed to be measles—there was no eruption, but a frank case at the time in another child in the family. This was followed by headache and other pains, oliguria, and blood in urine and stools. The progressive anemia suggested acute lymphoid leukemia without leukocytosis during life, but necropsy at the tenth week showed evidences of pernicious aplastic anemia, the lack of any reaction on the part of the blood and lymph producing apparatus.

Idiopathic Panotitis.—Nothing could be found to explain the sudden onset of the acute bilateral disease in the middle and internal ear of the boy of 5, previously healthy except for measles at 3, and a mild and transient influenza about a year later. The parents were healthy. The acute panotitis developed with high fever and partial loss of consciousness, contracture of the back of the neck and a few convulsions. These subsided after two days but the child was then totally and permanently deaf. No benefit was derived from vigorous measures for revulsion, potassium iodid, pilocarpin, etc.

Archivos Latino-Amer. de Pediatría, Buenos Aires

July-August, 1921, **15**, No. 4

*Fat Buttermilk in Infant Feeding. E. Gaing.—p. 261. Cont'd.
*Decompressive Operation for Fracture of Child's Skull. J. M. Jorge.—p. 272.
*Infant Welfare Work of Public Health Service. C. Ferreira.—p. 282. Cont'd.
*Ichthyosis. M. A. Guerrero.—p. 296.
Influenzal Croup. F. R. Fernández.—p. 301.
Tuberculous Meningitis with Polynucleosis in Boy. M. Lasala.—p. 303.
*Hydroa Vacciniforme. A. Carrau and M. Aguirre Aristegui.—p. 307.
*Acidosis and Acetonemic Coma in Girl. M. Ponce de León.—p. 312.
*Genital Tuberculosis in Boy of Five. V. Zerbino.—p. 317.

Fat-Rich Buttermilk for Infant Feeding.—Gaing's use of buttermilk with added cream—acid hyperfat milk, as he calls it—has already been mentioned in these columns. His further experience with it has increased his enthusiasm for this method of infant feeding. It can be used, he says, from the very first days of life to supplement or substitute breast feeding, and in various pathologic conditions later, as he describes. It supplies a food rich in calories, in small volume, and without carbohydrates. Even lactose is in small amounts. In this instalment he classifies the cases and results in 160 infants. He acknowledges that it conflicts with some of the theories of infant feeding in vogue, but the way the infants thrive on it answers all objections. (See page 1055.)

Early Trephining with Fractures of the Skull in Children.—Jorge reports the case of a boy of over 4 who fell from a height of about 45 feet. He was bleeding from mouth, nose and ears when picked up, and lay in coma for over five days, repeated lumbar puncture showing high pressure in the fluid, and the temperature kept high. Crepitation was apparent on palpation of the right temporal fossa. A skin and bone flap was cut and turned back here, and an extradural hematoma evacuated, and the middle meningeal artery ligated. The lateral ventricle was then punctured, releasing 200 c.c. of bloody fluid, and the dura began to pulsate. Camphor had been injected regularly, and epinephrin given by rectal drip. The day after the operation the child moaned some, and took a little water by spoonfuls, and the day after this it roused from its stupor. Complete clinical recovery followed, the child, five months later, showing no trace either physically or mentally of the accident except the somewhat depressible bone in the trephined area where Jorge had sliced off part of the bone of the flap before replacing it. Roentgenography at the time of the fracture showed the crack in the petrous bone but five months later showed little trace of it. The hemorrhage is what renders the prognosis grave with fracture of the skull, and it is usually inside the dura. Bradycardia is an important symptom when present, but in this case there were hyperthermia and tachycardia although there was no infection. Trephining is the only means to ward off serious injury regardless of the seat of the fracture. A decompressive operation under local anesthesia will benefit in every case of fracture of the skull, especially in children, when repeated lumbar puncture does not bring relief. It may ward off serious sequelae.

The Public Health Service in the State of S. Paulo.—This is the official report on the work of the infant protection department and of wet-nurse inspection.

Hereditary Icthyosis.—Guerrero reports a case of ichthyosis in a boy of 6 belonging to a family in which, in the course of several generations, there had been sixteen cases of ichthyosis, all in males, but always transmitted by the mothers, themselves free from it. The disease does not affect all the sons of these mothers but only those that resemble the mother. The sons that resemble the father seem to have escaped. There is a history of syphilis in the family of this case in the boy of 6, and specific treatment is now being pushed. If this fails, parenteral protein therapy will be given a trial.

Hydroa Vacciniforme.—Carrau and Aristegui state that the case of Bazin's estival hydroa described is the only one encountered in many years of practice. The boy of 8 looked as if he had smallpox, and the dermatitis persisted for forty-five days. He was kept in a cubicle with curtains to protect his skin from the light; there were no complications and the general health did not seem to suffer. Whitish scar tissue was left in the areas affected. It was the second time that the child had been thus affected. The urine had not been red, and tests for hematoporphyrin were negative.

Acetonemic Coma.—The girl of 6 had been subject to periodic vomiting, with acetonemia, from the age of 2. The attacks of vomiting were accompanied by slight fever, intense thirst and drowsiness, but the attacks lasted merely two or three days, and in the intervals she seemed entirely normal. The attacks grew gradually worse, finally entailing an irritable condition. The latest attack had been preceded by a few days of nausea and depression; then came the vomiting and stupor to actual coma with the odor of acetone on the breath. The palms and soles felt like parchment—a sign of acidosis. Tepid baths and sodium bicarbonate by mouth and rectum improved conditions, and by the third day the child seemed normal and hungry, but the acetonuria persisted for fifteen days longer. There was a slight acetonemia relapse two months later (February, 1921) as the diet of carbohydrates ordered had not been followed. Since then alkaline medication has been given occasionally to keep the reaction of the urine alkaline, and there have been no symptoms at any time. Ponce remarks that many cases of recurring supposed ordinary indigestion are probably of this type. The discovery of ketone bodies in an intensely acid urine is pathognomonic. In this case notwithstanding the gravity of the acetonic coma, the child recovered rapidly without necessity for giving the alkalines by the vein. Fats, oil, etc., are contraindicated at first; milk is directly injurious in acetonemia on this account. He hopes that by keeping the urine alkaline it may be possible to ward off attacks.

Tuberculous Orchitis in Child.—The orchitis and epididymitis of tuberculous origin in the boy of 5 had followed a trauma of the region. The tuberculous process had apparently healed under several months of heliotherapy but flared up anew during intercurrent measles. It has been retrogressing since and the general condition has kept good throughout.

Zerbino calls attention to this acute and temporarily mild form of genital tuberculous lesions in children. But the stress of puberty may rouse them anew.

Brazil-Medico, Rio de Janeiro

Aug. 6, 1921, **2**, No. 4

*Atypical Amebiasis. U. Paranhos and Paiva Reis.—p. 37.
*Roentgen-Ray Treatment of Uterine Cancer. O. Clark.—p. 39.
Medicolegal Import of Ecchymoses. Chapot Prevost and Ricardo.—p. 41.

Atypical Forms of Intestinal Amebiasis.—Five cases are described in which nothing but discovery of ameba cysts in the stools explained the apparent mucomembranous enteritis, dyspepsia with neurasthenia, infantile gastro-enteritis, or chronic colitis. Under emetin, with or without epinephrin, the symptoms rapidly subsided, curing the apparent chronic invalids and arresting the sowing broadcast of the amebas. The stools should be examined within an hour or half an hour, and care should be taken not to compress the amebas. To avoid this, a fine silk thread can be laid around the specimen on the slide to protect it from the cover glass. No stain is required. If the stool cannot be examined within an hour, by keeping it at 37 C. for an hour the amebas may regain their movements.

Radiotherapy of Uterine Cancer.—Clark describes the anti-cancer propaganda in Germany and the success of deep roentgenotherapy at Erlangen.

Aug. 13, 1921, **2**, No. 5

*Diagnosis and Treatment of Suppurative Foci. J. Monjardino.—p. 49.
*Acute Rheumatism Following Chorea. Ribeiro da Silva.—p. 53.
Mode of Action of Arsenicals in Syphilis. Pomaret.—p. 54.

Diagnosis and Treatment of Empyema.—Monjardino gives an illustrated account of his treatment of twelve patients with empyema in the thorax. The healing was complete in less than a month in four; in less than two months in six, and in less than eighty days in two. He used six tubes to distribute and drain out the Dakin fluid, under bacteriologic and roentgenologic control throughout.

Postchoreic Acute Articular Rheumatism.—The girl of 8 had developed normally, with no signs of rheumatism, when slight chorea developed and subsided in a month. Contrary to the physician's orders, the child was allowed to return to school, and the chorea reappeared, very severe, rebellious to sedatives until arsenous acid was given in progressive doses by Comby's method. As the chorea subsided, acute articular rheumatism developed, the child screaming at the slightest touch.

Aug. 20, 1921, **2**, No. 6

*Cancer in Brazil. O. Clark.—p. 65.
Syngamus and Other Parasites of Cats. Lauro Travassos.—p. 67.
Medicolegal Notes. Chapot Prévost and José Ricardo.—p. 71.

Cancer in Brazil.—Clark states that in Rocha Faria's service only forty cases of cancer have been diagnosed in the last ten years, and foreign writers refer to Brazil as a land where malignant disease is comparatively rare. But he presents arguments to prove that this rarity is only apparent. As necropsies are seldom possible in the service, the deaths are credited to malaria or other intercurrent disease, and the cancers escape detection. The rarity in the general population is due to lack of systematic records, the truth being that Brazil, and especially Rio, are not on a par with other countries in this respect. He explains that the increase in cancer of late years the world around is probably only apparent. The more advanced the hygiene and civilization, the greater the number of persons that will survive to die of cancer, and the greater the number of cases recorded, as vital statistics are compiled more carefully. But the obvious reason for the apparent increase is that progress in diagnosis reveals malignant disease that until recently would have escaped detection.

Gaceta Médica de Caracas, Venezuela

May 15, 1921, **28**, No. 9

*Relapsing Fever. R. Pino-Pou.—p. 111. Cont'd.

Relapsing Fever.—Pino Pou announced in 1918 that he had found a case of relapsing fever in Venezuela. He here reviews the literature on relapsing fever in general and Franco's report on cases seen in Colombia in 1906, Cevallos' in Peru in 1919, and other cases in Venezuela, Panama, Mexico, Cuba, Chile and Bolivia. It probably has often been mistakenly diagnosed as malaria. Examinations of the blood may not prove decisive but inoculation of rats is conclusive. The research of Tejera has established that the insect host transmitting the disease in Venezuela is a tick. This ornithodorus has habits like the bedbug, coming out to suck blood at night and hiding in cracks during the daytime, preferring high, cool localities. Monkeys, dogs, guinea-pigs, hens and rabbits seemed to be refractory to the virus, but rats developed the disease with remarkable facility and constancy, inoculated directly from a man or other rats, but the experimental disease was mild. Only one of the monkeys inoculated developed a very mild form. The spirochetes were very scanty in the blood in the Venezuela cases. Sometimes as many as 100 or 200 microscopic fields had to be examined before even one was discovered, and in some cases only inoculation of animals revealed the spirochetes. This characteristic links together the relapsing fever of Venezuela, Colombia and Panama, and classifies it apart from the European and African types, which are pathogenic for monkeys, but for rats only after passage through a monkey or rat. The cases observed in Venezuela by Pino Pou and others are summarized, and illustrations are given of the tick transmitting the disease.

Semana Médica, Buenos Aires

July 14, 1921, **28**, No. 28

*Perforation in Typhoid. N. D. Rosso.—p. 33.
*No Morphin in Kidney Colic. J. Nin Posadas.—p. 47.
*Tuberculous Laryngitis. A. Cetrángolo.—p. 48.
Hernia as an Industrial Accident. A. A. Masciotra.—p. 49.
The Soler Oscillographic Pulse Pressure Recorder. F. L. Soler.—p. 56.
*Deep Roentgen-Ray Treatment of Cancer. C. Heuser.—p. 58.

Perforation in Typhoid.—Rosso does not believe that it is possible always to distinguish between the sharp and persisting pain low in the abdomen from perforation in typhoid and the symptoms from endocrine insufficiency which may deceptively simulate it. But he advises immediate operation, even in case of doubt, and the earlier the better. Some typical instances are described; the perforation was not suspected in one case until irreparable damage had been wrought. In the next case the only symptom was the sudden acute and localized pain, and the laparotomy and suture of the perforation followed within four hours, the results ideal. In another case the interval before the operation was only one hour, but the escaping feces had already set up peritonitis. The pain in one of the cases related developed under the physician's hands as he was palpating the abdomen. As circumscribed peritonitis was found in every case, he thinks there must have been an inflammatory reaction before actual perforation. This is another argument in favor of early intervention. In a fourth case a sudden intense localized pain in the epigastrium was assumed to be from a perforation but before the arrangements were made for the laparotomy, the pain subsided, the abdominal walls were soft throughout, and under epinephrin and pituitary treatment the condition continued to improve. An upset in the endocrine balance had evidently been responsible for the pain and tenderness. The laparotomy in these cases of false perforation has always disclosed extreme congestion of the bowel vessels, with partial dilatation of the bowel, the suffering of the solar plexus simulating the pain from a perforation. The pain spread to McBurney's point, and fluctuated, and palpation increased the pain; the pulse also fluctuated, and there were painful spasms in bladder and heart, and waves of dysuria and tachycardia, the whole pointing unmistakably to a pluriglandular disturbance from the typhoid toxins, affecting the suprarenals predominantly.

Treatment of Renal Colic.—Nin Posadas warns that morphin arrests the peristalsis of the ureter, and hence it checks the downward passage of the calculus causing the colic, and perpetuates the pain. Morphin should not be given but some other sedative such as papaverin or pure opium, which does not have this action on smooth muscle fibers.

Tuberculous Laryngitis.—Cetrángolo declares that this pathologic condition would lose much of its bad reputation if we were in the habit of looking for it so that we could discover it in an earlier and curable stage.

Deep Roentgen-Ray Treatment of Cancer.—Heuser writes from Frankfort to describe the work being done in this line in Germany.

Siglo Médico, Madrid

July 2, 1921, **68**, No. 3525

*Epinephrin in Muscular Dystrophia. R. del Valle y Aldabalde.—p. 621.
*Innervation of Cicatricial Tissue. S. Ramón y Cajal.—p. 623.

Improvement of Muscular Dystrophia Under Epinephrin.—The muscles in the young man, especially those of the shoulders and legs, had become very weak in the last fourteen months, presenting a pseudohypertrophic atrophy of the Duchenne-Griesinger type. No benefit was derived from any of the various measures applied until epinephrin was given systematically, with massage and electricity. Great improvement was realized, the patient now walking without crutches, and, except that the muscles tire easily, seems almost normal. All authors agree that the most that can be hoped is to arrest the progress of the dystrophia.

Innervation of Scar Tissue.—Cajal excised a portion of a richly innervated tissue such as the lip, the tongue, or the skin of the paw in young rats, kittens and rabbits. The defect healed over rapidly. In five days the mutilated ends of the sensory nerves had sent out fibers which, after ramifying, twisting and turning, finally by the twentieth to the twenty-fifth day reached to the epithelium. The cicatricial tissue had no glands or hair bulbs, but these experiments demonstrate that in young animals and in tissues exceptionally well innervated, regeneration of sensory nerves does occur on a small scale. The new nerve fibers in their capricious twists and turns seem to be seeking the missing tactile corpuscles. It would be interesting, he adds, to study the partial or total regeneration of Meissner's and Krause's corpuscles and of the pacinian and genital corpuscles when the connected mesodermic factors have been cut out. It would be interesting, further, to learn whether the mutilated nerves under extensive loss of skin substance form small neuromas like those in a stump after amputation. He refers to the research on regeneration of nerves done by others, especially by Tello on the retina, by Boeke on the nerves of taste, and Cardenal's study of amputation stumps in his own laboratory, and Marinesco's, likewise on amputation stumps. But none of these seem to have studied whether there is regeneration of the mesodermic apparatus with which the nerves were formerly connected. "The nerves may regenerate, but if there is nothing for them to innervate, will they atrophy?"

Beiträge zur klinischen Chirurgie, Tübingen

1921, **123**, No. 2

*To Correct Shortening of the Femur. Kortzeborn.—p. 241.
Projectile in Heart. Koch.—p. 266.
*Unilateral Dislocation of Pelvis. W. Haumann.—p. 278.
*Central Dislocation of Head of Femur. H. Rahmann.—p. 308.
*Surgical Treatment of Gastric Ulcer. H. Brütt.—p. 324.
*Import of Urochromogen Elimination in Surgical Tuberculosis. G. Düttmann.—p. 454.
*Swine Erysipelas and Erysipeloid. Idem.—p. 461.
*Swine Erysipelas in Man. E. Schmidt.—p. 471.
To Bridge Gap in Quadriceps. F. Schreiber.—p. 480.

To Correct Crippling from Shortening of Femur.—In the case reported by Kortzeborn the femur had healed after a war fracture with a shortening of 10 cm., and contracture of the quadriceps held the knee flexed. This muscular contraction had more of a crippling effect than the shortening of the bone, and measures to correct this may render an operation on the bone unnecessary. In the case described, the five year shortening of the femur was reduced from 10 to 4 cm. by osteotomy and nail extension in semiflexion in a hammock support. The patient was instructed to exercise his knee actively as much as possible, and to return in a year for an operation on the quadriceps if the contracture still persists. Success has been found more certain with a plastic operation on the sartorius, according to Payr, than in the bone lengthening interventions.

Unilateral Luxation of the Pelvis.—Haumann has a record of 18 cases of this kind, including 6 recent ones and 9 in which he was consultant later. In 3 of the cases the dislocation was accompanied by fracture of a bone in the other half, and in 6 cases in the same half. The outcome was favorable as a rule in from one to seven months. In some of the old cases the luxation had not been recognized and corrected, and the parts had healed in abnormal relations, but the pelvis seemed strong and only in 3 cases was there curvature of the spine, and it was slight. The bladder disturbances rapidly retrogressed, and the tendency to paresis of the leg also promptly subsided. In 2 cases the nerves in the calf seemed weak for years afterward. Full earning capacity was regained in 8 cases, and in 3 others the disability was estimated at 10 per cent. In no instance was it over 25 per cent. One of the men died the ninth day, and another during the eighth month from the effects of the accident. Bandages applying traction reduced the dislocation in 2 cases, and instances of spontaneous reduction have been published. The dislocation is often complicated by torsion.

Central Luxation of Head of Femur.—Rahmann concludes from his sixteen cases that strict bed rest plus massage and exercising the joint are all that is necessary as a rule with central luxation of the head of the femur; at most, extension. Even when the central displacement of the head was not recognized, and hence not treated, the disability did not amount to more than from 15 to 40 per cent. by the end of the second year. With medicomechanical measures the outcome is still better. By keeping the limb in abduction, adduction contracture is warded off.

Surgical Treatment of Gastric Ulcer.—Brütt's 130 page article analyzes the experiences in this line in Kümmell's service at Hamburg, with the remote results in 260 cases recently reexamined. Among his conclusions is the dictum that transverse resection gives the best remote results with a hard ulcer elsewhere than at the pylorus. The mortality was only 5 per cent. while it was 4 per cent. with gastroenterostomy alone.

Test for Urochromogen in Surgical Tuberculosis.—Düttmann declares that a positive response to the M. Weisz test for urochromogen is a reliable index of the severity of the pathologic condition and its modification by treatment. Patients excreting urochromogen continuously must be regarded as in a grave condition. It should turn the scale in favor of radical rather than conservative treatment with a tuberculous process in bone or joint. If the response persists positive after the operation, this is a sign that the operation was not radical enough or that there is some other focus elsewhere. Not until the urochromogen disappears from the urine are we justified in counting on a favorable outcome. With amyloid degeneration of the kidney, the urochromogen cannot be eliminated, and this is a bad omen. The urochromogen represents the preliminary stage of the diazo reaction but is more sensitive than the latter. The simple technic has been repeatedly described, as on page 1371 of THE JOURNAL for October 22.

Swine Erysipelas in Man.—Düttmann has observed 8 cases recently which he is convinced were instances of rotlauf in man. The source of infection from a pig with the disease was known in three of the cases, but in the others there was no suspicion of the origin of the symptoms in the patient, and erysipeloid had been the label. In his cases as also in four reported by Schmidt in the following article, recovery was complete in from one to three days under serotherapy.

Deutsche medizinische Wochenschrift, Berlin

Aug. 11, 1921, **47**, No. 32

Metabolism in Obesity. F. Rolly.—p. 917. Begun No. 31, p. 887.
*The Urine Test for Tuberculosis. G. Farago and P. Randt.—p. 919.
Deycke-Much Partial Antigens in Pulmonary Tuberculosis. W. Düll.—p. 921.
Diagnosis of Hydatid Cyst of the Liver. F. Partsch.—p. 923.
*Temporary Exclusion of Phrenic Nerve for Hiccup. F. Kroh.—p. 925.
*The Physiologic Significance of Adenoid Tissue. O. Fleischmann.—p. 925.
Motor Device for Prosthesis of Lower Extremity. Nossen.—p. 926.
Trismus Caused by Acute Circumscribed Edema. E. Ball.—p. 927.
Cowpox Inoculation as Protection Against Pertussis. Hammes.—p. 928.
Ovarian Treatment of Exophthalmic Goiter. S. Koslowsky.—p. 928.
Present-Day Views on Uremia. H. Strauss.—p. 929.
Treatment of Abortion. L. Blumreich.—p. 930. Cont'n.

Wildbolz' Own Urine Reaction.—Farago and Randt give the results of their investigations on the Wildbolz own urine reaction for the determination of the activity of tuberculosis. The concentrated urine of patients with active pulmonary tuberculosis (with positive tubercle bacilli findings) yielded in persons sensitive to tuberculin twenty-seven positive, and only one negative, reactions. But also with the

urine of persons who did not offer the slightest evidence of tuberculosis (physicians, hospital personnel and patients with mild ills) they obtained thirty-seven positive and four negative reactions. They conclude that the own urine reaction is caused essentially by the traumatic and chemical effects of the injected concentrated urine, and has therefore no value for the diagnosis of tuberculosis. Whether the urine of tuberculous subjects contains specific substances that, after elimination of disturbing factors (salt effect), have a diagnostic value, remains to be decided by further investigations.

Temporary Exclusion of the Phrenic Nerve.—In eight very severe cases of hiccup Kroh found blocking of both phrenic nerves an exceedingly effective remedial procedure.

The Physiologic Significance of the Adenoid Tissue.—Fleischmann states that the peculiar manner in which atrophic rhinitis develops (following trauma, for example) throws light on the physiologic significance of the adenoid tissue. It secretes substances easily oxidizable, and supplies thus material on which the oxygen that passes through the buccal and nasal cavity may satisfy its oxidizing tendency, thus protecting the tissues from its otherwise harmful effects.

Zentralblatt für Gynäkologie, Leipzig

Aug. 6, 1921, 45, No. 31

Baneful Effect of Pregnancy on Cancer of Uterus. Frankl.—p. 1094.
Gynatresia Hymenalis Associated with Pregnancy. Gross.—p. 1095.
*Effect of Labor Pains on Angiospasms. H. Hinselmann.—p. 1096.
Stasis Hemorrhage in Eclampsia and Pregnancy Kidney Disease. E. L. Zöllner.—p. 1097.
Inquiry into Origin of Amniotic Fluid. F. Bertkau.—p. 1099.
Fourth Maneuver in External Examination of Parturients. Baumm.—p. 1101.
*Puncture of Fetal Membranes Plus Quinin for Induction of Labor. A. Fülöp.—p. 1103.

Influence of Labor Pains on Angiospasm.—Hinselmann recalls that albuminuria and eclampsia arising during pregnancy are frequently ascribed to a disturbance in the blood supply to the organs concerned, and that many have suspected that angiospasms were the cause of the poor blood supply. The latter supposition has received support by the observation that, in the capillaries of the skin, angiospasms can be demonstrated as being abnormally increased in the presence of albuminuria and eclampsia. In a curve registering synchronously the pains and angiospasms, during the first stage of labor, in a patient suffering from a pregnancy kidney affection, Hinselmann points out that the labor pains coincided markedly with the angiospasms, and holds that the supposition that labor pains may increase angiospasms seems proved. This factor makes it clear why all affections with which is associated poor capillary circulation are unfavorably influenced by the birth process.

Puncture of Fetal Membranes Plus Quinin for Induction of Labor, Normal or Premature.—Fülöp is convinced that the simplest and, from the standpoint of infection, the least dangerous procedure for the induction of labor is the puncture of the fetal membranes by the Scheel method. However, one disadvantage of the method lies in the fact that the effect of such intervention is too slow (in one case labor did not commence until after eighteen days). A further disadvantage is that if version becomes necessary, the absence of the amniotic fluid renders this more difficult. Fülöp has sought to eliminate the disadvantages of the method by combining quinin medication with the puncture of the membranes, thus inciting the uterus to greater activity, reenforcing the pains and shortening the duration of birth, so that it was but little above normal. The labor pains began in 2.3 hours, on the average, in fifteen cases. The duration of birth averaged 24.9 hours.

Mededeel. v. d. Burg. Geneesk. Dienst, Java

1920, No. 10. Parallel Dutch-English Edition

*Insanity in Dutch East Indies. F. H. van Loon.—p. 2.
Suggested Measures for Promoting Hygiene. J. J. van Lonkhuijzen. p. 50.
Influenza in Netherlands Indies, 1918.—p. 76.

Insanity in Dutch East Indies.—This is the official report to the authorities on the insane of the Acheen province of Sumatra. The proportion of dangerous lunatics is said to be very large.

1920, No. 11, Parallel Dutch-English Edition

*Work of the Public Health Service in Dutch East Indies, 1911-1918. C. D. de Langen, P. C. Flu, A. A. Hulshoff and J. Huizinga.—p. 4.

The Public Health Service in the Dutch East Indies.—This bulky volume shows the progress realized in sanitation and welfare work in general in the Netherlands Indies. Smallpox seems to have been nearly eradicated, but plague still keeps a foothold although under control. In 1914, there were 15,703 victims, and in 1915 the subdirector of the Pasteur Institute, Dr. W. A. Borger, succumbed to pneumonic plague. Twenty leper asylums have been provided. It is planned to treat yaws with arsphenamin. But malaria is the main danger, and this has been incessantly and zealously combated. [Although the conditions for exterminating mosquitoes are exceptionally unfavorable on account of the extensive coast line and frequent lack of slope for drainage, the service is said by experts elsewhere to have accomplished wonders with the means available.]

Hospitalstidende, Copenhagen

Aug. 24, 1921, 64, No. 34

*Surgical Treatment of Chronic Nephritis. T. Rovsing.—p. 529.

Surgical Nephritis.—Rovsing has now a record of 77 cases of aseptic nephritis and nephrosis in which he slit and loosened up the capsule. This form of nephrolysis, he insists, is entirely harmless, which, he adds, cannot be said of the operation of slitting the kidney. His first operation of the kind was done in 1892, when he slit and loosened up one capsule and thus released an accumulation of blood on the surface of the chronically diseased kidney. The sudden onset of intense pain had compelled intervention on assumption of a calculus. Edebohls' decapsulation is practically the same thing, and many remarkable recoveries have followed these operations. In one case the young man developed edema, and albumin up to 24 per thousand was found in the urine. Eight months of hospital treatment on a milk diet brought no relief, the edema becoming more pronounced even under a month of salt-free diet. When Rovsing saw the case there were also tube casts, 30 to 56 per thousand albumin, and 10 gm. urea in the urine but the residual nitrogen and the blood pressure were normal; hemoglobin 46 per cent. Other symptoms confirmed the chronic tubular nephritis or nephrosis. He slit the capsule of the right kidney and loosened it up. It was not taut but rather loose, and the kidney tissue contained innumerable small yellowish white spots. The edema, hydrothorax and ascites showed great improvement, the girth becoming reduced from 108 to 78 cm. The ureter catheter nearly a month later showed only 8 per thousand albumin and a few isolated tube casts in the urine from this kidney, while they were still numerous in the urine from the other kidney and the albumin formed 41 per thousand. These findings encouraged him to operate on the other kidney, and after this second nephrolysis all traces of edema disappeared and also the albuminuria and the patient seems perfectly well.

How to explain this cure by the nephrolysis is a question. The capsule was not stretched nor abnormally adherent and the circulation had not been hampered, and the benefit was too prompt to be ascribed to development of new blood vessels. Slitting the capsule may possibly have released some toxic substances that had accumulated under it, and been the source of the nephrosis. In other even severer cases the course was the same, and in one case the interval since has been eleven years with no sign of further disturbance. He reports also some remarkably favorable experiences with advanced contracted kidney, the blood pressure falling and the process apparently arrested and life prolonged. In one case in a woman of 44 there has been no return of the formerly frequently recurring hematuria during the three years since. He does not resect the capsule, but always takes a scrap of the kidney for microscopic examination, and catheterizes both ureters before and later. The only instances in which no benefit was apparent were 2 cases of unilateral hemorrhagic parenchymatous nephritis. One was cured later by nephrectomy and the other, he thinks, might have been. In his 3 cases of glomerular nephritis the two unilateral cases were cured by nephrolysis but the bilateral case was

only improved. All were cured of the 26 cases of interstitial nephritis and perinephritis with attacks of pain and hematuria but no albuminuria in the intervals. There were signs of the uric acid and oxalic acid diathesis in these cases, and he is inclined to incriminate toxic action from these as responsible for the disturbances. Of the 32 cases with albuminuria, 19 were entirely cured, mostly those of the urate group. The cases with only more or less improvement were of the contracted kidney type. In conclusion he warns that chronic nephritis is unilateral more often than is generally recognized.

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*Arteritis Neither Tuberculous nor Syphilitic. F. Harbitz.—p. 609.
*Seropurulent Meningitis. H. F. Høst.—p. 631.
*Acute Psychosis with Valvular Defect. H. F. Høst.—p. 634.
*Unilateral Syringomyelia. H. Krohn.—p. 637.
*Spontaneous Fracture of Patella. T. S. Hanssen.—p. 641.
*Extralimbal Tangential Sclerectomy for Glaucoma. S. Holth.—p. 645.
Inversion of Testis with Torsion of Spermatic Cord. J. Borchgrevink. —p. 652.
*Operative Treatment of Brain Tumors. V. Magnus. Supplement.

Arteritis of Unknown Origin.—Harbitz refers to arteritis for which neither syphilis nor tuberculosis is responsible, describing some cases of a hitherto unknown microscopic structure. In one case the arteritis was found in a kidney removed for persisting hematuria in the young man, the organ otherwise normal. In the cadaver of a man of 40 who had presented the clinical picture of rheumatic purpura, an infiltrating and proliferating inflammatory process was found in the arteries and veins in the skin. In two other cases the arteritis was in the brain; one of these patients was probably syphilitic. In a fifth case, cerebral syphilis was accompanied by changes resembling periarteritis nodosa in some respect. If sought for, he says, arteritis of obscure origin might be found more common.

Serous Meningitis?—Høst reports a case of meningitis with sudden stormy onset in a young man with fever to 40.4 C. (105 F.) intense headache, stiffness of the back of the neck, vomiting and vertigo when he tried to sit up, but the mind was clear and there was nothing to suggest paralysis. The pupils were uneven but reacted well. The Lasègue sign was positive. The third day the headache disappeared, and the stiffness of the neck the following day, and by the seventh day the temperature was normal and recovery was complete. Lumbar puncture was applied three times but the fluid was sterile although turbid and with positive Pandy reaction and lymphocytosis; pressure, 130 to 120 mm. The findings differed from those in Quincke's serous meningitis; in this the fluid is clear and under high pressure. The fluid at the first puncture seemed typical of tuberculous meningitis, but it had cleared up by the second puncture. Treatment had been only ice to the head, and, the first day, acetylsalicylic acid to relieve the pain.

Acute Psychosis with Valvular Disease.—The woman had been given bromids in the course of hospital treatment for mitral and aortic insufficiency. An acute psychosis followed for which, Høst thinks, the bromid must be incriminated although she had taken only 60 gm. of potassium bromid at the time.

Syringomyelia.—A case of incipient unilateral syringomyelia in a man of 57 is described in detail. Considerable improvement was realized under repose, baths, massage and roentgen exposures of the spine.

Osteopsathyrosis.—Hanssen reports two cases of fracture of the patella, both in young men, both with extremely fragile bones. The fracture occurred without direct injury; in one case during the bending of the knee, in the other in jumping down steps.

Operative Treatment of Glaucoma.—Holth describes with illustrations what he calls a new technic: tangential and extralimbal sclerectomy in chronic glaucoma, and he enumerates five special advantages of this method.

Surgery of the Brain.—Magnus' monograph is published as a separate pamphlet of 138 pages, and describes his experience with 112 cases of brain tumors, 1903 to 1920, with a total of 197 operations. The immediate mortality was 8.1 per cent. He has also operated in 20 cases of epilepsy and in 31 of trigeminal neuralgia, with recovery in this last group of all but one. His record is unique in that he was responsible for both the diagnosis and the surgical treatment in the 112 brain tumor cases. They are described in detail, and the necessity for palliative trephining is emphasized, as soon as a brain tumor is diagnosed and choked disk is discovered and no certain signs to point to the focus can be detected, or evidence of the metastatic nature of the lesion. The earlier it is done, the better the chances for preserving vision. The dura should always be opened and as amply as possible. With typical jacksonian epilepsy, an exploratory operation on the skull should be done without waiting for choked disk. If the tumor seems to be deep seated, the bone must be cut away extensively and the dura opened up wide. If the dura is distended, he has found that it is better to puncture the lateral ventricle preliminary to opening the dura. Traumatic epilepsy must always be trephined and the dura opened, and with persisting headache after a trauma to the head search should be made for choked disk at intervals of a few weeks at longest. His experience has further confirmed that when alcohol injections fail to relieve trigeminal neuralgia, there is no recourse except resection of the pontine root of the gasserian ganglion. Of his 112 brain tumor patients, 12 were clinically cured by the operation, with earning capacity restored, the intervals since from four to ten years. In 48 cases the operation relieved the pain and saved vision, till death from six months to five years afterward. In 7 others great improvement followed, but a cerebral defect was left. Fully 50 per cent. of the total patients thus benefited, more or less from the operation. No improvement was realized in the 10 cases of genuine epilepsy.

Upsala Läkareförenings Förhandlingar, Upsala

Sept. 1, 1921, **26**, No. 5-6. Only first half indexed

*J. Aug. Hammar Festskrift.
*Diagnosis of Perforation of Gastric Ulcer. B. Bager.
*Ocular Nystagmus and Railroad Nystagmus. R. Bárány.
*Hereditary Ataxia. E. Bergman.
*Lesions in Oblongata and Pons. G. Bergmark.
*Effect of Epinephrin on Healthy Persons. A. Bjure and J. Svensson.
Gallbladder Originally Part of Liver. I. Broman.
*Operative Treatment of Dysmenorrhea. H. Forssner.
Anatomy of Thymus in Aging Rabbit. E. Gedda.
*Tests for Reducing Substances in Dead Tissue. W. Geschwind.
*Genesis of Tongue Papillae in Man. T. J. Hellman.
*Localization in Cerebellum. C. Hesser and A. Troell.
*Development of Falx Cerebri and Tentorium. O. Hultén.
*Agenesia of Corpus Callosum. J. V. Hultkrantz.
*Structure of Healthy Ovaries. P. Häggström.
*The Childhood of Obstetrics. C. D. Josephson.
*Access to Pons and Cerebellum. J. Karlefors.
*Epidemic Encephalitis. A. Kristenson.

Hammar Festskrift.—This bulky and handsomely illustrated volume is dedicated to Prof. J. A. Hammar on his sixtieth birthday. It contains thirty-eight articles by members of the Upsala Medical Society and others, and opens with a list of Hammar's works, ninety in all, mostly on constitutional anomalies and the endocrine system. Each article is paged separately in the Festskrift, which is a regrettable feature. All the articles but one are in German or English.

Roentgen Diagnosis of Perforated Gastric Ulcer.—Bager reports two cases in which the discovery of air free in the abdominal cavity gave the clue to the diagnosis of perforation of a gastric ulcer.

Ocular Nystagmus and Railroad Nystagmus.—Bárány offers here an explanation of the phenomenon observed by him of nystagmus in an abnormal direction in testing for "railroad nystagmus."

Hereditary Ataxia.—Bergman describes three families with Friedreich's spinal ataxia and one with Marie's cerebellar ataxia, with the family trees. The families were all Swedish and agricultural, and one of the families is well to to do; the others are poor farm laborers' families. In the Friedreich cases signs of degeneracy are common, but in the Marie case the family stock is good; except for one death from diabetes at 16, the family history is excellent. In none of the families is there a history of syphilis or abuse of alcohol. In one of the families with Friedreich's ataxia, six of the fifteen children present it; in one other family four of the eleven children. In none of these three families were other cases of the ataxia known in parents or grandparents.

In the Marie family there was one member affected with the cerebellar ataxia in three generations, and no other instances were known in the other generations or among the twenty-one other members of the four families descended from the one couple in the second generation. Besides the fourteen patients with pronounced spinal or cerebellar ataxia in these families, Bergman gives the details of the other members of the families who present signs of degeneracy although free from ataxia. The article is in English.

Sensory Disturbances from Lesions in Pons and Oblongata.—Bergmark gives an analysis of the disturbances in sensibility, in the power of localization, in space sense, and in muscle sense, as studied with three cases of tumor in the pons, medulla or in the greater foramen. His article is in English and fills 109 pages, and has forty-five illustrations.

Effect of Epinephrin on Healthy Persons.—Bjure and Svensson devote eleven pages to the tabulated minute details of the phenomena observed in five healthy medical students after intramuscular injection of 1 mg. of epinephrin. The sugar content of the blood invariably increased, reaching its maximum in forty-five minutes. Comparison between the reactions in different persons and in the same person at different times shows considerable variations in the response, especially in the lymphocytosis observed with a maximum about half an hour after the injection. They add that the variability imposes caution in estimating the effect of epinephrin on the sick or the well. (In English.)

Operative Treatment of Dysmenorrhea.—Forssner admits that an unstable nervous system and tendency to emotionalism are important factors in painful menstruation. In the 153 cases of dysmenorrhea for which he was consulted during the last ten years, and for which no appreciable cause could be discovered, he found that in 88 these subjective factors were responsible for the disturbances to such a degree that by training the patient in self-control and will-power the dysmenorrhea was often practically cured. In 65 other cases he found that while this helped, yet something more was needed. The premenstrual congestion of the uterus mucosa seems to be the cause of the pains, as the uterus is too narrow, and in seeking to correct this, the uterus contracts, as with a labor pain. Among the arguments advanced to sustain this view is that the first childbirth usually puts an end to the dysmenorrhea permanently, as the uterus gets stretched. Another argument is that patients in labor with their first child have told him that the labor pains were just like those they had had in the painful menstruation. His intervention is therefore merely to stretch the uterus and cervix, aiming to induce contractions as with labor. He dilates the cervix with Hegar bougies. With young girls this cannot be done with more than a No. 10 or 12. Then he tampons the cavity of the uterus as completely as possible, and leaves it for forty-eight hours, which often induces quite painful contractions of the uterus. The tampon is then removed and a larger bougie introduced, up to No. 20. He then investigates the uterus with the finger and usually follows with abrasion. Then he tampons anew and leaves the tampon for another forty-eight hours. He has never had any mishaps with this technic and never infection. If the patient objects to this treatment he never tries to urge her. In 54 of the 58 cases in which he applied it, 46 per cent. have never had any dysmenorrhea since. In 34 per cent. of the cases there is still a little pain at menstruation but nothing to compare with the previous disturbances and the women keep up and about which was never possible before. About 20 per cent. of the total say that the dysmenorrhea is the same as before or the improvement was only for a few months. The interval since has been from ten to seven years in 14 and from one to five years in the others. If disturbances return, it might be possible to banish them anew by repeating the procedure. The other women in his list passed through a pregnancy not long after and are omitted from his figures. In conclusion he remarks that this proportion of 80 per cent. cured or immeasurably improved commends this harmless method for treatment of severe dysmenorrhea. (In German.)

Tests for Reducing Substances in Dead Tissues.—Geschwind's critical study of the different methods in vogue was interrupted by the death of the young worker. (In German.)

Genesis of the Papillae of the Tongue in Man.—Forty-two illustrations accompany this report of research in the Anatomy Institute of which Hammar is director. (In German.)

Localization in the Cerebellum.—Hesser and Troell remark that it is by no means established that the cortex of the cerebellum is a motor sphere, although this seems to be generally accepted. Their experiments on cats and dogs have apparently demonstrated sensory (receptor) properties, as they explain. The cerebellar cortex seems to be a functioning mechanism of remarkably complicated construction and distribution of function. The control of balance and coordination seems to be connected with the association tracts rather than with the cortex itself. (In German.)

Development of the Falx Cerebri and Tentorium.—Hultén discusses this subject from the standpoint of a case of congenital malformation of these parts. (In German.)

Effect of Lack of Corpus Callosum.—Hultkrantz states that the hundred or more of cases on record of agenesia of the corpus callosum throw little light on the effect of the absence of this great commissure of the brain, as there was usually defective development of other parts at the same time, which might have been responsible for the symptoms observed. He describes the case of a farm laborer of 21 who succumbed to sepsis from a carbuncle, and necropsy showed the complete absence of the callosum. In this, as well as in twelve similar cases of which he gives summaries, this absence of the great commissure did not seem to affect brain functioning to any extent. At least, retrospective investigation of the subject's behavior and mentality failed to reveal any striking abnormalities. In his case the motor, sensory and mental functions seemed to have been normal, so far as could be ascertained. He theorizes to explain this lack of symptoms; at most, somewhat backward development had been noted. In eighteen others of the thirty investigated, there was actual imbecility. (In German.)

Analysis of Ovaries.—Häggström made serial sections of the ovaries of a healthy woman of 22 who had been killed suddenly by illuminating gas poisoning, and he reproduces the figures in respect to size and number of the different elements, etc. (In German.)

Obstetrics in Ancient Times.—Josephson quotes from the Westcar papyrus, 1700 B. C., a description of the birth of triplets. After the cord was cut, the babe was laid on a bed of bricks. He explains this as probably warmed bricks or a brick stove with a cloth laid over it. The room was chosen for the lying-in room possibly on account of having this brick stove in it. In the Scandinavian countries the room with the stone hearth used to be selected for the same purpose. The next oldest description of childbirth is in the First Book of Moses. It is stated in regard to two childbirths, "in the time of her travail, behold, twins were in her womb," and Josephson queries whether it is possible that the Hebrew midwives could have diagnosed the twin pregnancy before delivery. It is stated that the midwife bound upon the protruding hand a scarlet thread, saying, "This came out first." In conclusion Josephson analyzes the description of the birth of Hercules by Hesiod, by Homer and by Ovid, an instance of superfetation, according to the description, as both Zeus and Alcmene's husband cohabited with her the same night, and one twin was the son of Zeus, the other of her husband. Josephson comments that there is no conclusive evidence against the possibility of superfetation, but the instances of it on record are not very convincing. (In German.)

Access to Subarachnoidal Space in Pons and Cerebellum Region.—Karlefors urges the necessity for examining this region in all cases of disease of the internal ear, and describes a special method for access which is simple and convenient. (In German.)

Epidemic Encephalitis.—Kristenson analyzes an epidemic in three Swedish regiments, and emphasizes the importance of abortive cases in the spread of the disease. He thinks that we may even admit the possibility of healthy carriers. Nervous symptoms should be sought for.